FAO Fisheries Report No. 732, Supplement FIPD/R732, Suppl. (En)
ISSN 0429-9337

Papers presented at the

WORKSHOP AND EXCHANGE OF VIEWS ON FISCAL REFORMS FOR FISHERIES – TO PROMOTE GROWTH, POVERTY ERADICATION AND SUSTAINABLE MANAGEMENT

Rome, 13–15 October 2003

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Rome, 2004

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ISBN 92-5-105223-9

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PREPARATION OF THIS DOCUMENT

Resource rent is of overriding importance in fisheries exploitation. Depending on the institutional arrangements in a fishery, it may be the driving force leading to overexploitation in its two main forms (overcapacity and overfishing) or it may be the basis for the generation of sustainable wealth and revenue. Fiscal arrangements, and hence their reform, are important in at least two ways. First, fishery management systems are gradually beginning to emerge that allow resource rent to be generated on a sustainable basis. Fiscal conditions will determine the sharing of this wealth between different stakeholders. Second, fiscal arrangements may themselves constitute an important management measure, usually supporting other management instruments and helping to control exploitation levels.

In this context, the Support unit for International Fisheries and Aquatic Research (SIFAR) conceived and organized an international workshop on fiscal reform for fisheries, which was hosted by FAO from 13 to 15 October 2003 in Rome, Italy. Financial support for the workshop was provided by DFID (the UK Department for International Development).

A key goal of the workshop was to facilitate discussion between participants, drawing on their varied backgrounds, on the central theme of how best to use fiscal methods to achieve both fisheries policy objectives, and broader economic, social and environmental objectives.

This supplement to the Report of the Workshop and Exchange of Views on Fiscal Reforms for Fisheries - to Promote Growth, Poverty Eradication and Sustainable Management No. 732 presents a series of case study papers prepared by participants at the workshop – all key policy-makers from ministries of finance and fisheries, and researchers in their respective countries of origin. The country papers requested information based both on personal experience and secondary material, and an overview of the following:

- experience with fishery fiscal reforms focusing on international and national levels of fisheries policy and governance;
- experience of fisheries access agreements within effective fiscal policy and management regimes;
- challenges facing implementation of fiscal reform and how these may have been tackled including the need for more information;
- areas where improvements can be made.

Country papers presented in this Supplement rovided the basis for discussions at the Workshop.

This document was compiled and edited by Stephen Cunningham and Tim Bostock, respectively Consultant from the Institut du développement durable et des ressources aquatiques (IDDRA) to SIFAR/FAO and Executive Secretary of SIFAR.

Distribution:

Workshop participants
Directors of Fisheriesirectors
FAO Fisheries Department
FAO Members

Cunningham, S.; Bostock, T. (eds./comps.)
Papers presented at the Workshop and Exchange of Views on Fiscal Reforms for Fisheries - to Promote Growth, Poverty Eradication and Sustainable Management. Rome, 13–15 October 2003.
FAO Fisheries Report. No. 732, Suppl. Rome, FAO. 2004. 110p.

ABSTRACT

The Support unit for International Fisheries and Aquatic Research (SIFAR) conceived and organized an international workshop on fiscal reform for fisheries, which was hosted by FAO from 13 to 15 October 2003 in Rome, Italy. A key goal of the workshop was to discuss the best use of fiscal methods to achieve both fisheries policy objectives, and broader economic, social and environmental objectives.

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Workshop on the fisheries sector tax system and its role as a management tool: Mauritania

by

Chérif Ould Toueileb[1]

Plan

- A few facts about the physical environment, resources, the importance of the sector on the country's economy.
- Mauritanian macroeconomic and sectorial policy.
- The role of the tax system on fishery management in Mauritania: regulation system and access to resources.
- Assessment and prospects.

Physical environment

- 720 km of shoreline;
- Permanent upwelling;
- 234 000 km² of Exclusive Economic Zone (EEZ);
- Wide continental shelf and a very large zone of shallow waters: Banc d'Arguin;
- The largest AMP in Africa (60% of the coastal zone);
- Completely unpolluted zone.

Resources

- Great species diversity;
- Great commercial value (70 species exported);
- Annual potential catch: 1,5 to 1,7 tonnes;
  - Demersal resources are fully to overexploited (octopus);
  - Major potential in pelagic resources, possible controlled development/shared stocks;
  - Unexploited clam stock of 300 000 tonnes;
  - Catches in the range of 600 000 tonnes/year;
  - Industrial fishing: 90%;
  - Artisanal and coastal fishing: 10%.

Economic importance

- 40% of revenue in foreign currency (second sector after mines);
- 20 to 25% of State budgetary revenue;
- 10% of Gross National Product (GNP);
- 30 000 jobs of which 36% are modern sector jobs;
- Consumption 4,3 kg/per capita/year;
- Export > 95% of catch. Only 10% of exported products are processed.

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Fishery policy within the Centre de recherches sur les politiques économiques (CSLP) macroeconomy framework

- Sustainable optimization of economic income from the sector.
- As for industrial fishing, the long-term strategy is to ensure that fishing products are processed on national soil.
- As for traditional and coastal fishing, controlled development is to be ensured within a decennial development plan.

1998 Fishing policy

- Sustainable resource management .
- Increased economic sector integration.
- Strengthening of institutional capacity.
- Environmental preservation and maritime security.

The tax system as a management tool
Three tax system levels, viz.:

- Direct "common" taxing on firms' profits (corporation tax on BIC, IMF).
- Indirect taxing: fishing sector will be submitted to "régime des points francs " (New Investment Codes).
- Specific taxing system for fishery management: access to resource regulations in order to solve the problem of free and no charge entry, i.e. recovering of licence fees, fisheries management and management of fishery income.

Income management

- Income management is closely linked to the fishery reform policy.
- Income management (CA - CT), 3 possibilities:
  - Distribution (free and no charge access);
  - Capitalization (within or outside the sector);
  - Recovering? (based on turnover and cost parameters) this will be developped in the presentation of the Mauritanian example.

From 1984 to 1995: access regulation system based on:

- Landing in Mauritania and a catch control on demersal fishing.
- Marketing monopoly by a State company: the SMCP.
- An export tax (called Droit de pêche) proportional to a fraction of the turnover on exportations (12%).

Taxation on turnover.
The role of the tax system in public fishery resources management policies in Mauritania.

From 1996 to 2003: regulation system based on:

- Fishing licences (access rights).
- Taxation on capacity elements: Gross register tonnage (GRT) for industrial fishery, length of boats for artisanal fishery.
- + A freezing of industrial fishing effort since 1998.

Taxation on capacity elements.
Strengths and weaknesses of current system.
The role of the tax system in public fishery resources management policies in Mauritania.

A few findings on the expert study carried out

- Steady decline in number of taxes collected (1.9 million UM in 2000 as opposed to 3.4 million in 1997).
- Missed earnings for the State estimated at 714 million UM in 2000 (in comparison to keeping the old system).
- A decrease in the fisheries' relative importance on budgetary resources and a change in the contribution structure (access rights only counted for 2.3% of the Government budget in 2000, as opposed to 16% for export tax in 1996).

Development of comparative results of both systems

- Difficult because:
  - other concurrent changes have intervened (decline in octopus stock, plus European Union fishing agreement);
  - the second system, as it was designed, does not work (access rights are not recovered as artisanal fishing is exempt from the 2% IMF corporate tax and access fees and rates of annual taxes are not updated).

Findings on the sector's situation

- Fish stocks are fully to overexploited for octopus (excess fishing effort on octopus by 25% in 1998, 30% in 2002).
- National fishing companies in poor situation (especially the industrial segment: 215 national trawlers in 1996, 125 in 2000).

Current comments and future prospects

- The 2002 expertize on the sector's tax system reform recommends:
  - Annual up-dating of taxes as planned originally;
  - Introduction of elements linked to production and its value in fee calculation (collected at customs level).
- Study on the role of the tax system within the framework of the octopus management plan.

Fiscal reforms in fisheries in Uganda

by

Godfrey Bahiigwa[1]
Kenneth Mugambe[2]
Keizire Boaz Blackie[3]

1. Introduction

1.1 National importance of fisheries

The fisheries sector is important in the Ugandan economy for several reasons. It is a source of direct employment and livelihood support for an estimated one million Ugandans. This constitutes about 4 percent of the total population. According to Government sources, the fisheries sector contributed about 2.4% of the total Gross Domestic Product (GDP) in 2002 (Ministry of Finance, Planning and Economic Development – MFPED, 2003). However, because of inadequate baseline data, fisheries resources in Uganda, as in many other countries, are greatly under-valued. Evidence of this is provided by a more recent and detailed study (Banks, 2003) that revealed a fivefold higher value of the sector, totalling US$220 million and contributing 12% of the total GDP in 2002. A major proportion (63%) of the total value was generated by domestic fish trade whilst the remainder resulted from the export of fish and fish products which contributed US$81 million.

Uganda is fortunate in having major export fisheries based mainly on Nile perch from Lake Victoria. Fish exports contributed 17% of the total value of exports from Uganda in 2002, having grown from less than one percent in 1990 (Uganda Bureau of Statistics – UBOS, 1998; DFR, 2002; MFPED, 2003). Fish currently ranks as Uganda's highest non-traditional agricultural export earner and the considerable export revenues play an important role in contributing to Uganda's development vision of increasing its overall foreign exchange earning capability.

Fish is very important in nutrition, as it provides vital nutrients and a source of animal protein, especially to the poor who are unable to purchase other more expensive sources such as beef, pork or chicken. It is estimated that capture fisheries feed about 17 million people at an average annual per capita consumption of 10 kg. The species of fish that play an important role in food security and nutrition of the poor, differ from those supporting export earnings.

The sector provides employment to fishermen, fisher mongers and those employed in fish processing. Therefore, it has an important direct and indirect impact on poverty reduction efforts in Uganda. The direct benefits arise from direct dependence on the fisheries, especially the lake communities. Indirect benefits arise from secondary employment through services that are provided in support of fisheries.

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[3] Senior Economist, Department of Fisheries Resources, Ministry of Agriculture, Animal Industries and Fisheries, Entebbe, Uganda.

1.2 Ownership of fisheries resources

Fish resources are common property resources held in trust by Government on behalf of the people of Uganda. The Government does not own these resources but, through its Department of Fisheries Resources (DFR), it is responsible for the safe-guarding and overall management of resources. A major concern is that many resource users treat the sector as if its natural resources were infinite. They are treated as shared resources that almost anyone can access with relative ease. There is a perception that resources that belong to all belong to none and this stimulates a "free for all" attitude based on short-term gain, competing for resources today without giving due regard to long-term resource sustainability.

1.3 Threats to fisheries resources

Despite the tremendous recent growth in fisheries exports, the sector as a whole is threatened. Fish catches peaked in 1993 at 276 000 tonnes. Catches have since averaged about 220 000 tonnes per year. Trends in fish catches and exports are shown in Annex 1. The relatively stable annual catch reported during the last decade masks serious concerns about the status of fish stocks in most major water bodies. There is widespread concern that substantial and rapid increases in fishing effort are leading to overfishing and the use of illegal and harmful fishing methods/gears. There is particular concern that illegal fishing practices capture immature fish, thus interfering with the natural process of stock rejuvenation. This trend is related to the issue of access to fisheries that will be discussed in more detail in later sections. The threats to the fisheries not only impact on livelihoods within dependent fishing communities, but also on the wider economic growth of the country.

1.4 Previous fisheries management approach

For decades, fisheries management in Uganda has been based on a centralized "command-and-control" approach. This approach has little or no community involvement in decision-making processes. It also proved to be a costly approach requiring a large number of government personnel. The failure to effectively consult stakeholders and communities meant that rules were often perceived to lack legitimacy, thus lessening the chances of compliance. Non-compliance in turn led to increased confrontation between the State and resource users and higher enforcement costs which Government could not, or at least, was not prepared to meet.

With the advent of decentralization in the 1990s, responsibility for implementation of fisheries management shifted to local governments under the oversight of the centre. In practice, however, little changed. The sector remained under-resourced and, typically for inland fisheries worldwide, unrecognized for the important role it plays in poverty reduction and economic growth. Fisheries, until very recently had a low profile and attracted very little funding both at national level and at decentralized district government level. As a result, fisheries resources and the livelihoods of the million or more dependent on these resources continued to be threatened.

It is within this background that the leaders of the fisheries sector realized that there was need for radical change if resources were to be used wisely and livelihoods, especially of the poor, were to be secured. Precisely how this is being achieved and how it relates to the need for fiscal reform in fisheries is outlined in the following sections of this paper.

2. Fisheries policies, laws and institutions

The fisheries sector is undergoing a period of major transition during which reforms are underway to develop and improve national policy, legislation and institutional efficiencies. The transition involves improvements in civil society organization, closer links between

communities, private industry and government, improved linkages between different levels of government and between different government sectors that have traditionally remained largely disconnected.

2.1 National fisheries policy

For decades, the fisheries sector in Uganda has been managed without an explicit policy document. It is only in 2000 that the DFR began a participatory process to formulate a new National Fisheries Policy (NFP). The policy-making process involved a wide range of stakeholders at all levels and therefore took quite a long time, finally resulting in the policy being submitted to Cabinet in 2003. The NFP has 13 policy areas which are summarized in Annex 2. The policy strongly promotes new management approaches, notably among others, the involvement of local people in the co-management of fisheries resources in partnership with local governments. This is in line with general principles underpinning the overarching Plan for Modernization of Agriculture (PMA) and government's policy on decentralization. The fisheries policy highlights the need to link directly with the National Agricultural Advisory Services, an innovative vehicle of the PMA designed to provide publicly funded, privately delivered demand-driven advisory services to farmers and fishers. Here, there is need for fiscal reform related to capture fisheries and other common property natural resources.

The NFA recognizes the need to focus on securing sustainable funding for fisheries management institutions at all levels and these too require concomitant fiscal reforms. The importance of improving fisheries information collection is also clearly recognized, and again, there is need for fiscal reform at the grassroots level. The policy articulates the need to align research more closely to stakeholder requirements, and yet again fiscal reform linked to wider institutional reform at national level is under consideration within the newly develoed National Agricultural Research System. Details of the above mentioned fiscal reforms are outlined in section 4.

2.2 National fisheries legislation

The Fish Act (1967) is the principal legislation for managing fisheries in Uganda. It directs the control of fishing, the conservation of fish, the purchase, sale, marketing and processing of fish. The Fish Act is old and needs revision to reflect the changes that have occurred in the fisheries, especially in recent years, and to align it to the new fisheries policy. Efforts to revise the Act by the Department of Fisheries Resources are on-going but this has proven to be a lengthy process.

In the meantime, DFR has introduced additional fisheries legislation that is urgently needed in key areas. It has achieved this through the development of a series of Statutory Instruments. The most visionary of these is new legislation establishing co-management of fisheries resources[4]. The Government has made a major leap forward in trusting its people to co-manage resources in partnership with local governments. This has been achieved through legislation empowering the formation of community Beach Management Units (BMUs) for fisheries planning and management (see 2.3).

A second key area relates to control of access to fisheries. The DFR uses fisheries vessel licensing both as a potential management tool to control access and as a means of extracting revenue from the value of fisheries resources. Legislation introduced in December 2001 delegated licensing powers from the centre (DFR) to district governments.

A third area of legislative development relates to increasing taxation of fisheries vessels, fishing permits and fish marketing. These laws were introduced to serve as a means of

[4] The Fishing (Beach Management) Rules, Statutory Instrument No. 35, 11 July 2003.

extracting resource rent for increased local government revenue and to inhibit new entrants to increasingly exploited fisheries.

2.3 Fisheries institutional restructuring

Fisheries institutional reform is taking place simultaneously at three levels – micro-, meso- and macro-level, with new links between these levels.

Micro-level

At the micro-level, the Government is putting its policy into practice by supporting the establishment of a national network of 500-700 legally empowered community Beach Management Units. BMUs will be established at all officially designated fish landing sites. The only legal right of access to exploit fisheries resources at designated landing sites is through joining a BMU. If a fisher, processor or trader, etc. does not join then he/she cannot operate legally in fisheries. BMU membership allows active involvement in decision-making processes governing the management of fisheries resources in partnership with local government. It also allows control of access to fisheries resources by limiting numbers and types of fishing boats and gears. BMUs are able to set management rules locally and at lakewide level through by-laws and ordinances.

Meso-level

The BMUs are set up in such a way that they work in collaboration with lower local governments and are also linked to meso-level local governments at the district or inter-district level. This approach to fisheries management represents a revolutionary way that is designed to lead to sustainable integrated resource use and management. The BMU law provides for collaboration and association with other BMUs to form higher level BMUs and association with lakewide management organizations. The first such totally Uganda lakewide management body has been established on Lake George and is known as the Lake George Basin Integrated Management Organization (LAGBIMO). A similar organization will be formed on Lake Kyoga in early 2004 and known as the Lake Kyoga Integrated Management Organization (LAKIMO). These organizations provide a framework within which civil society works hand-in-hand with government and, where relevant, private industry to develop, implement and monitor the performance and impacts of integrated lake management plans. These lake organizations have legal identity under the Local Government Act, 1997.

Macro-level

At the national level, a process is underway to transform the Department of Fisheries Resources into an autonomous body called the Uganda Fisheries Authority (UFA). This central level body will bring together all fisheries stakeholders in the country and link them to meso-level organizations, grassroots BMUs and international fisheries management bodies such as the Lake Victoria Fisheries Organization (LVFO). At the same time, the parent ministry of DFR is under-going its own structural and functional re-organization with which a new UFA must link.

Do the BMUs solve the problem of the open access?

In our view, the BMUs represent a new approach to fisheries management compared to the command and control approach. However, while the BMUs represent improvement, they are unlikely to solve the problem of open access entirely. In the long-run it does seem inescapable that Uganda needs to consider other measures such as defining property ownership rights within the fisheries and the property rights should be transferable. In addition, it is not clear what incentives or alternatives are offered to BMUs that may be "excluded" from the fisheries, even if

previously they depended on them for their livelihoods. In any case if all end up becoming member of BMUs how different will the situation be from the previous one in terms of limiting access.

3. Fiscal policies in fisheries

Fiscal policies directly relevant to fisheries in Uganda cover a range of activities, including input supply costs, access to capture fisheries, fish processing, marketing, monitoring and management costs. Fiscal policies relate to mechanisms that are "internal" within the fisheries sector such as the extraction of economic rent from fisheries as well as those that are "external", lying outside the sector but which have a significant influence on efficiencies within the sector.

3.1 Internal fiscal policies

An economic rent is the maximum economic surplus that can be extracted from the fishery while the fishing industry continues to operate efficiently. One rationale for extracting part or all of the potential rent from the fishery is based on the premise that the fish stocks represent a national resource and that society, as a whole, should receive a share of the benefits from their exploitation. Studies (e.g. Arnason, 1990) indicate that in well-managed fisheries economic, rents typically range from 10-60% of the gross value of landings. In Uganda, the annual gross value of landings is at least US$220 million. Hence, the potential rents should be at least US$20 million and quite possibly as high as or higher than US$100 million annually.

The key issue, however, is that the rents that exist within the Ugandan fishery are not properly extracted. Even those extracted using the fiscal instruments outlined below are hardly ever re-invested or ploughed back (at least not directly) for the management and sustainability of fisheries. Current practice revolves around extracting rents that are deposited with national and district treasuries or with private individuals for use outside fisheries. Funds from national treasuries are used to finance, among other things, public goods such as roads and other social infrastructure.

Central government level

At the central level, there are two main instruments: industrial processing licence and health inspection certificate.

(a) *Industrial fish processing licence*
The industrial fish processing licence in Uganda is an annual licence issued by the DFR to all fish processing firms. The licence is currently issued at an annual charge of Ushs 500 000 (about US$256[5]) for each operating processing factory.

(d) *Health inspection certificate*
The DFR is mandated to certify the quality and safety of fish, especially for export. All the fish destined for export market is certified by the Fisheries Department by issuing a health inspection certificate after conducting quality and safety tests on samples of every

[5] The current exchange rate (September 2003) is 1 US$ = Ush 1950.

consignment[6] or batch of fish export. This certificate is issued at a charge of Ushs 2 000 (about US$10) for every consignment.[7]

Local government level

Under the decentralization framework in Uganda, local governments are organized in two tiers with legal identity and autonomy. First is the district level, which is the immediate lower local government from the central. The second is the sub-county level, which is the immediate lower local government from the district level. Government administrative units exist below sub-county level, at parish and village. Under these local administrations, limited fisheries extension services are provided whilst there is a stronger focus on fisheries revenue collection by fisheries officers. There is a wide range of fisheries related taxes and fees. The levels of most of these are set by central government. The funds generated by them are remitted to local government. The following are fiscal instruments applied by local governments:

(a) Fishing vessel licence

In the Ugandan fisheries, the right to fish requires an annual fishing vessel licence issued by district fisheries departments. Until recently the licence cost Ushs 12 000 (US$6) for small, planked canoes without an engine and Ushs 17 000 (US$9) for vessels with an engine. However, recent reforms have resulted in substantial increases in licence fees (see section 4).

(b) Fishing permit

The fishing permit, although contained in the principal fisheries law, in practice was not strongly or widely enforced until very recently, and is one of the on-going fiscal reforms (see section 4). The individual annual charge ranges from Ushs 5 000-7 500 (US$2.5-4) and is paid by crew members, who are generally much poorer than the boat owners.

(c) Fishmongers licence

This is a fish trading licence with a range of values depending on district and the geographical extent of trading operation. Until recently, annual licence fees for traders operating within a single district ranged from Ushs 5 000-15 000 (US$2.5-7.5) for small-scale traders. Higher fees (US$10) were charged for vehicle trading between districts. All fishmongers licence fees were increased under a new Statutory Instrument (see section 4).

(d) Marketing permits

Marketing permits are required by all traders in secondary and higher markets. The charges for permits vary across the country and between different sized markets. At the primary market at fish landing sites, market fees are also charged but these are paid under a system of tendering tax collection by district governments. Tendering systems are discussed in paragraph (f) below.

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[6] A consignment is defined under the Fish (Quality Assurance) Rules (1997) as "a quantity of fish products bound for one or more customers in the country of destination and conveyed by one means of transport only". The batch on the other hand is defined as "a quantity of fish or fish products obtained under practically identical circumstances, during a period of time indicated by a specific code".

[7] Statutory Instruments 1998 No. 56, section 6 (3)of the Fish (Quality Assurance) Rules 1998 under section 43 of the Fish Act, (Cap. 228).

(e) Fish landing fees

A daily landing charge is applied by local government at all designated fish landing sites. The charge is about Ushs 500 (US$0.25) per boat. This charge is collected using a tendering of the tax collection system (see para f).

(f) Tender charges

Uganda has embarked on a radical course of decentralization, in which tendering of service delivery has become widespread across the country and applied to all sectors. Fisheries are the only natural common property resources that are subjected to a system of tendering service delivery. The service tendered is tax collection. Boat landing fees, market fees and other associated taxes are collected by private tender holders who pay local governments an agreed tender price fixed in their bid for the tender in return for the right to collect specific taxes on behalf of local governments. The profit of the tender holder is the amount over and above the reserved price of the landing site and costs of tax recovery.

There is clear evidence that fisheries tendering is a highly profitable business and consequently, there is much competition to acquire tenders. It has been estimated that the annual profit from tendering is about US$150 000 on Lake Kyoga and it may be as much as US$1.5 million on Lake Victoria. These profits are never re-invested in fisheries management and development. Furthermore, they result in the overcharging resources users, especially the poorest users and undermine efforts to promote sustainable resource management. Fisheries tendering is one of the key areas in need of radical fiscal reform.

Community level

In addition to the many formal taxes and licence fees listed above, there are also many informal charges made when fishing boats land their catch. These charges are usually in the form of fish taken from each boat, or occasionally in cash. Many of these charges operated under fish landing site committees. These are groups formed, under government encouragement, and composed of the more powerful boat owners and fish traders at fish landings. Other charges are also made illegally by local fisheries staff.

3.2 External fiscal policies

Wider fiscal policies determined outside the fisheries sector but which have an important influence on it, include the following:

- central government budget allocations: fisheries traditionally marginalized in the Ministry of Agriculture, Animal Industries and Fisheries – MAAIF, low budget despite its importance;

- import subsidies: tax exemption on fishing nets.

4. Fiscal reforms in fisheries

4.1 Internal reforms

Several options exist within the Ugandan fishery where fiscal reforms can be used to capture rents and improve their value to the sector. These options revolve around the "user-pays-principle" and other ways of recovering costs of fisheries management from the fishery itself than relying on government transfers. Note also that well-managed fisheries usually yield

economic rents[8]. Empirical studies suggest that potential economic rents in fisheries typically range from 10 to 60% of the total gross value of landings (see Arnason, 1990; Bjorndal, 1990[9] and others). In Uganda, the gross value of landings may be estimated in the neighbourhood of at least US$200-300 million per annum. Hence, the potential rents should be at least US$20 million and quite possibly as high as or higher than US$100 million annually.

The following are proposals for fiscal strategies which fisheries can utilize to increase rents with the aim of increasing benefits to the sector. They are discussed at three different levels of fisheries management i.e. national, local government (district) and community levels.

National level

At national level, it has been proposed, though not yet implemented to put a cess on fish exports to generate rents that would run the affairs of the fisheries sub-sector. A proposal of 3% had been made, lower than the 6% that is charged on fish exports in neighbouring Tanzania. In Uganda, analysis has shown that such a cess would not affect the competitiveness of the fish processing firms and fish exporters. In any case the idea of a cess on exports is not new in Uganda. The coffee industry has been using it for quite some time and the activities of the Uganda Coffee Development Authority (UCDA) are funded from the 1% cess on coffee exports. Likewise, the proposed National Fisheries Authority could be partly funded by a modest cess imposed on fish exports, rather than relying on a constrained national treasury.

District level

At the district level, direct revenue from fisheries is in the form of tender revenue collected by private tenders at landing sites and various taxes/fees on access (vessel licence, fishing permit), processing and trading. Central government has recently substantially increased existing licence fees. These include fishing vessel licences and fishmonger licences of Ugandan nationals and foreigners. This has resulted in considerable increases in locally generated fisheries revenue remitted to local governments. Central government is now considering how part of this revenue may be used to support the national UFA.

At present, funds generated by fisheries taxes are used for general local government activities, with no or little consideration of the needs of the fishery that generated them in the first instance. The Local Government Act, 1997 provides for the district to send 65% of local revenue to sub-counties which in turn should remit 25% of that to Local Council. While this mechanism returns resources to the lower local governments, there is no guarantee that they will invest in fisheries management. Specific efforts need to be made to ensure that fish revenue (at least a proportion of it) is ploughed back for fisheries management. This reform is likely to take two approaches. The first involves direct allocation of part of a new fisheries tax to community BMUs for management purposes (see next para for details). The second would fund district-based fisheries management function or organizations created at that level such as LAGBIMO on Lake George.

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[8] An economic rent is the maximum economic surplus that can be extracted from the fishery while the fishing industry continues to operate efficiently. One rationale for extracting some or all of the potential rent from the fishery is based on the premise that the fish stocks represent a national resource and that society as a whole should receive a share of the benefits from their exploitation.

[9] Arnason, R. 1990. A numerical model of the Icelandic Demersal Fisheries. *In* G. Rodrigues (ed.) Operations Research and Management in Fishing. Nato ASI vol. 189. Kluwer. Bjorndal. T. 1990. A Bio-economic Analysis of North sea Herring. *In* G. Rodrigues (ed.) Operations Research and Management in Fishing. Nato ASI vol. 189. Kluwer.

Community level

Fisheries stakeholders pay fees and taxes that are remitted to district governments or go as profit to tender holders. The BMU system will change this state of affairs, to some degree, by involving communities in deciding how local revenues from fisheries are utilized for improved fisheries management and development. The BMU legislation has three provisions for financial reform: (i) retention of 25% of the money generated from issuing fish movement permits at the fish landing site as prescribed in Statutory Instrument No. 61 of 2002; (ii) profit generated from tender holding for those BMUs who may win district fish landing site tenders; and (iii) collection of a number of fish or a set value per boat landing as established through by-laws vetted by lower councils as per section 40(1) of the Local Government Act, 1997 (Government of Uganda – GOU, 2003).

None of these methods is entirely satisfactory. The first is an added tax introduced by the centre to enable it to track the origin of fish and its movement after landing. This is a traceability requirement imposed on the export fishery by the European Union (EU) in relation to Nile perch, but is now applied in law to all species of fish throughout Uganda. The second accepts the tendering system and makes no attempt to reform this exploitative and inequitable system. The third involves another addition to the tax burden of producers only, and will not be popular whilst the tender holder remains alongside collecting the same type of tax.

An alternative approach to fiscal reform, which is currently under debate, is the removal of fisheries tendering and replacing it with a Fisheries User Fee paid to district government by BMUs. Financial analyses reveal that this system, if employed, will increase the funds to local government, decrease the charges to resource uses and leave a substantial amount for fisheries management and development. This system also offers the opportunity to simplify a complex local fisheries taxation system and takes into account its differential impacts on different stakeholder groups with regard to poverty reduction.

4.2 External funding

The Poverty Eradication Action Plan (PEAP) is Uganda's Poverty Reduction Strategy Paper (PRSP). The PEAP guides national development and budget framework. With increasing competition for central government budget allocations operating under the ceiling of the Medium Term Expenditure Framework, it is essential for individual sectors to engage in this competitive process in order to secure an adequate share of funding. Uganda has also adopted the Sector Wide Approach (SWAp) to development. This approach demands improved financial analyses in budgeted sector strategic plans.

The fisheries sector has responded positively to these new, wider developments. It is currently expending much effort to raise its own profile within Uganda by demonstrating the importance of the sector in poverty reduction and economic growth. It is actively involved in the current revision of the PEAP which takes place at three yearly intervals. It has developed a detailed, budgeted Fisheries Sector Strategic Plan (FSSP) that provides a road map for putting its new National Fisheries Policy into practice.

The sector is also very proactive in attracting major donor support programmes embedded within the MTEF and additional national funding support through the Government's Strategic Export Initiative.

The sector is working closely with the NAADS programme and has established a NAADS/Fisheries Taskforce and is an active member of the NAADS/NR Taskforce. It is using these bodies to influence NAADS in key areas of fiscal reform with major relevance for the fisheries sector. DFR is advocating the establishment of special funds established at

district level to support common property natural resources. These will be used to provide capacity support through training of BMUs and other advisory service support such as the local delivery of research.

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Annex 1: Trends in fish catch and exports

Figure 1: Fish catch and exports in Uganda: 1990-2001

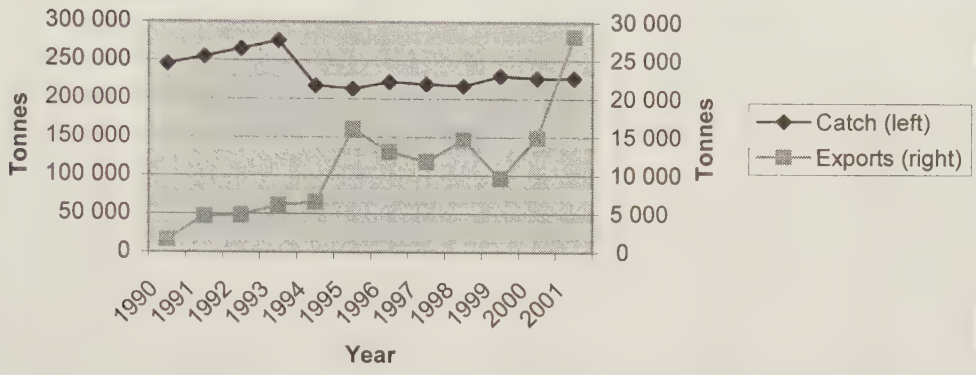
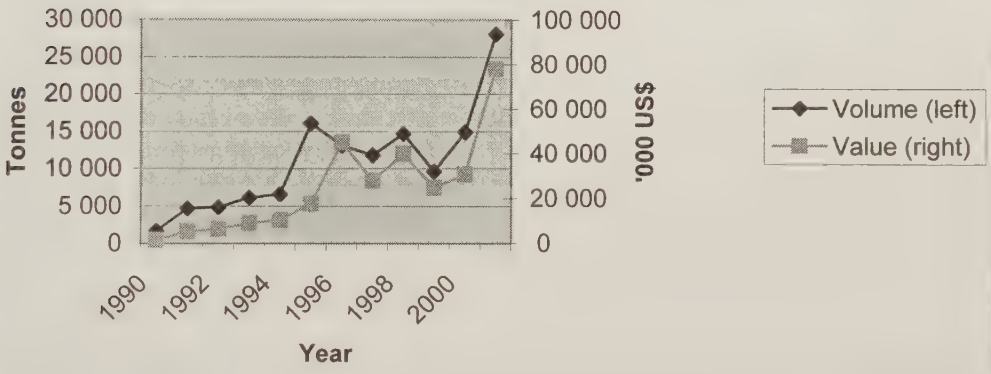


Figure 2: Fish exports (volume and value) in Uganda: 1990-2001



Fish production and exports in Uganda

Year	Exports (volume) (tonnes)	Exports (value) US$ '000	Total Exports US$ '000	Export Share (% value)
1990	1 664	1 386	177 658	0.78
1991	4 687	5 313	184 263	2.88
1992	4 851	6 498	146 767	4.43
1993	6 138	8 943	201 231	4.44
1994	6 564	10 403	459 939	2.26
1995	16 046	17 541	553 938	3.17
1996	13 100	45 030	703 993	6.40
1997	11 819	27 864	594 628	4.69
1998	14 688	39 879	536 747	7.43
1999	9 628	24 837	478 750	5.19
2000	14 894	30 818	401 645	7.67
2001	28 119	78 150	451 765	17.30
2002	27 370	80 850	475 530	17.00

Annex 2: National fisheries policy objectives

1 **Sustainable management and development of fisheries**: Fisheries will be managed and developed to promote the socially and economically sustainable use of fisheries resources and the protection of aquatic ecosystems so as to meet the needs of present generations without compromising the ability of future generations to meet their needs.

2 **Decentralization and community involvement in fisheries management**: Stakeholders will be involved in the management of fisheries by devolving some decision-making responsibilities to local governments and communities.

3 **District, sub-county and community partnership in fisheries management**: District, sub-counties and communities will collaborate in the management of shared fisheries and aquatic ecosystems.

4 **Institutions and funding mechanisms**: Sustainable institutions and funding mechanisms for improved fisheries management will be identified and established.

5 **Investment in fisheries**: Public, private sector and community-based investment in the fisheries sector that is environmentally, socially and economically sustainable will be promoted.

6 **Planning and policy making**: Transparent and participatory planning and policy-making will form the basis of fisheries management.

7 **Information:** Effective systems for the collection, compilation, analysis, storage and dissemination of information will be established for planning, management, monitoring and evaluation purposes.

8 **The environment and fisheries**: Adverse environmental impacts on fisheries will be minimized and mechanisms will be established at appropriate levels to achieve this.

9 **Aquaculture**: Aquaculture fish production will be promoted to reduce the gap between fish supply and the increasing demand for food fish.

10 **Post-harvest fish quality and added value**: Measures will be instituted to ensure that the quality, wholesomeness, safety for human consumption and value of harvested fish and fishery products is secured and/or enhanced.

11 **Fish marketing and trade**: Measures will be taken to achieve sustainable increases in the value and volume of fish marketed for national consumption and export.

12 **Human resource development:** The Government will promote comprehensive training and advisory programmes so as to build human resource capacity and to increase levels of knowledge, skill and expertise in the public and private fisheries sub-sectors.

13 **Research**: Social, economic, environmental and technical investigations of issues pertinent to fisheries, including the development of appropriate technologies, will be promoted in response to fisheries development and management needs.

Fiscal reforms for Kenya fisheries

by

Nancy K. Gitonga[1] and Robin Achoki[2]

1. Introduction

Kenya's Fisheries sub-sector has the potential to significantly contribute to the national economy through employment creation, foreign exchange earnings, poverty reduction and food security support. The annual fish production in Kenya is approximately 200 000 tonnes earning the fishers over Kshs 7 billion (approximately US$90 million). The common nature of the natural fishery resources renders it vulnerable to mismanagement because they are open to use by everyone and, therefore, not looked after by anyone.

The Department of Fisheries is mandated to facilitate the development and management of the fisheries sub-sector. The potential of the sub-sector has not been fully realized due to low prioritization of the sector by policy makers, perhaps due the poor knowledge of the sector's potential. The current top-down policy decision-making processes, which do not involve stakeholders, lack of coherent development plan, and the low priority given to the sector in terms of resource allocation, has adversely affected its growth. Frequent movement of the Department from Ministry to Ministry, demonstrates the low priority accorded to the sector.

Kenya Fisheries and Marine Research institute (KMFRI) is mandated by an act of Parliament to carry aquatic research including fisheries research. The low funding levels for research and the unclear collaborative system for research data sharing between the institute and the key players of the sector, has also inhibited fisheries growth. Perhaps the main constraints contributing to the poor development of the fisheries sector, especially marine and aquaculture sub-sectors are institutional. These constraints include lack of information from research institutions on distribution, abundance and sustainable yields of capture fisheries, and lack of adequate information on factors that would expedite aquaculture growth. The absence of a comprehensive policy and a fisheries master plan exacerbates the problem.

1.1 Vision for the sub-sector

To increase fish production on sustainable yield basis in order to improve fishers' and fish farmers' incomes, alleviate poverty, reduce unemployment and enhance food security at both household and national levels.

1.2 Policy mandate

The policy mandate of the Fisheries Department is fisheries development and management. The legal mandate is derived from the Fisheries Act Cap. 378 of the Laws of Kenya.

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1.3 Mission statement

To facilitate sustainable management and development of fishery resources to ensure an increasing supply and consumption of fish and fish products in order to achieve socio-economic benefits in an ecologically viable environment.

1.4 Strategic objective

To facilitate utilization and conservation of natural fishery resources and promote aquaculture development and recreational fisheries.

1.5 Policy objectives/goals

1.5.1 To maximize fish production on a sustainable yield basis, so as to permit fishers and fish farmers to achieve optimum socioeconomic benefits and contribute to food security.

1.5.2 Reduce post-harvest losses of fish by introducing appropriate technologies to the fishers, processors, traders and fish farmers.

1.5.3 Ensure the safety of fish and fish products for consumer through improvement and stabilization of fish products.

1.5.4 Increase *per capita* fish consumption.

1.5.5 Enhance fish marketing to expand and maintain local and international market share.

1.6 Functions of the Department

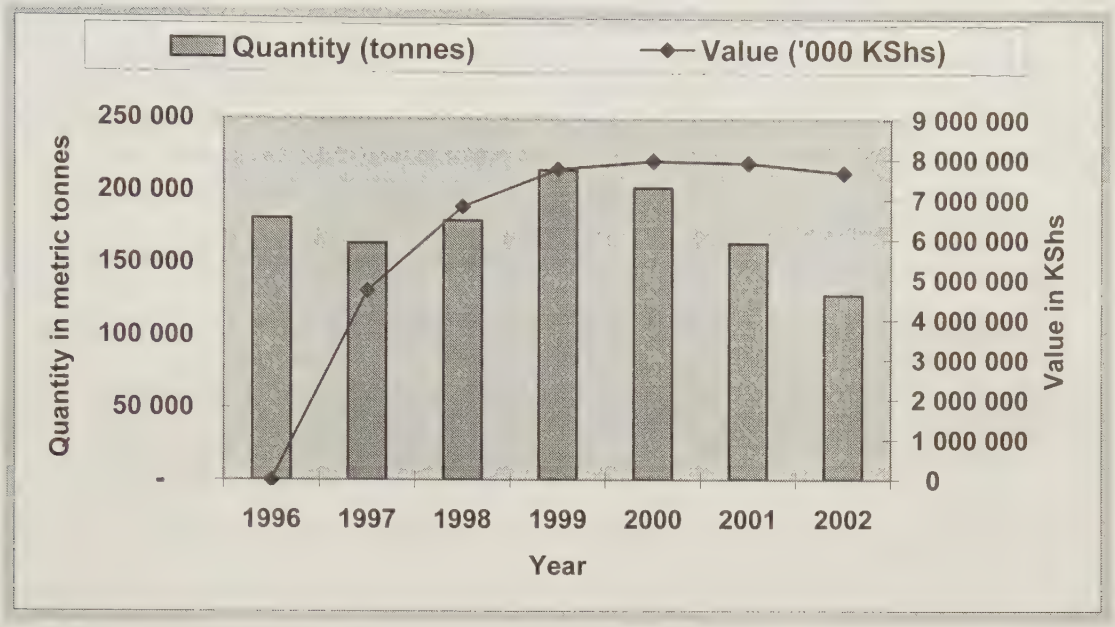
- Facilitation of management and conservation of natural fishery resources
- Promotion of aquaculture development
- Fish quality and safety assurance
- Fish marketing regulation
- Promotion of recreational fisheries
- Fishing technology development

2. Importance of fisheries in Kenya

Fishing is a way of life for fishing communities. There is considerable social importance attached to fishing activities such as making/or mending fishing nets, boat building, fishing competitions, etc. Fishery products provide high protein diet and, therefore, contribute to improved nutrition and health of the communities living in fishing zones.

Fisheries contribute to the country's economy through employment creation, generation of income and foreign exchange earnings. The Fisheries sector also promotes other auxiliary industries such as net making, packaging material industries, boat building, etc. Over 500 000 people are directly employed by the sector, while over 1 million benefit from it. The freshwater fisheries, especially Lake Victoria, support about 35 000 fishers and the marine fisheries over 8 000 fishers. The majority of these fishers are artisanal using unmechanized fishing vessels. The country earns about Kshs 4 billion (approximately US$50 million) in foreign exchange and the fishers over Kshs 7 billion, thus contributing to poverty alleviation in rural Kenya.

Figure 1: Total fish production and value in Kenya in 1996-2002



Fishery resources provide for recreation through sport fishing and angling. These activities promote fisheries tourism in Kenya. The marine big game sport fishing significantly contributes to coastal tourism, but its importance in the fisheries sector is subdued due the prevailing poor licensing and monitoring system, which need to be reviewed in order to correctly reflect its contribution to fisheries. The review process for sport fishing earmarked to start with stakeholder consultation is envisaged establish a system that would lead to sustainable management of the popular fish stocks for the sport and ensure commensurate resource rent is derived from this fishery. Angling as a sport in trout rivers and the lakes is yet to be developed to the desired levels. There is need to re-establish and intensify the trout rivers stocking programme though modernization of the existing hatcheries and development of new ones.

3. Freshwater fisheries

This includes fishery resources in inland lakes, dams and rivers. Lake Victoria is the major contributor of fresh water fish production in the country as it contributes over 90% of the total Kenyan fish landings (Figure 2). The major freshwater commercial species include Nile Perch (found mainly in Lake Victoria and a small percent in Lake Turkana), Tilapia and freshwater sardines locally known as *omena,* with Nile perch contributing over 50% of Lake Victoria fish landings (Figure 3). Lake Victoria is shared among the three East African Partner States, i.e. Kenya, Uganda and Tanzania, with Kenya enjoying the smallest share of 6% and Tanzania the largest share of 49%. Kenya's portion is very productive due to the many inputting rivers into the Lake.

4. Marine fisheries

This includes the 12 nautical miles territorial waters and the 200 nautical miles of the Exclusive Economic Zone (EEZ). The marine resources have considerable quantity and range of coastal and offshore marine fishery resources with good potential for economic development (Habib, 2003).

Kenya's marine zone is bordered by a coastline measuring roughly 420 km in a straight line and expanding to some 880 km if coastal contours are taken into account. The country lies just south of the equator between $0^{o}40'$ and $4^{0}40'$ latitude S. A great part of the coastline is

fringed by mangrove forests and swamps. The total area of the Kenyan EEZ is about 230 000 km^2.

Figure 2 : L. Victoria contribution to L. Victoria Fisheries Production

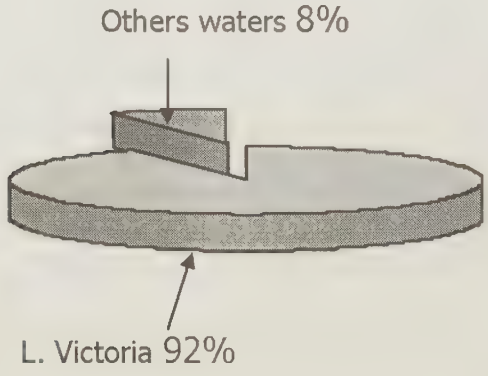
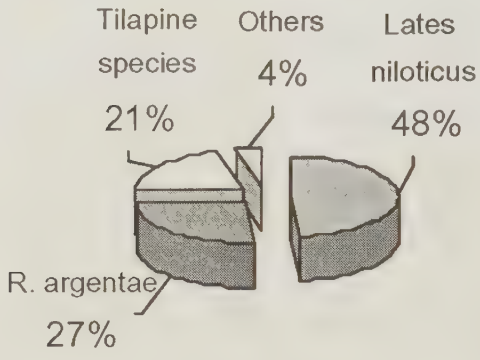


Figure 3: Contribution of Nile perch to National Fish production



South West Indian Ocean waters, particularly East African coastal waters, are characterized by two distinct oceanic environments. The South East monsoons season from May through to September characterized by strong winds, rough seas and low productivity and the North East monsoons from October through to April with calm warm weather, moderate winds and increased productivity.

Kenya's known marine inshore fishing grounds include the rich inshore grounds around Lamu Archipelago, Ungwana Bay, North Kenya Bank and Malindi Bank. The bulk of the marine catch is taken in shallow inshore waters, mainly by artisanal fishers using simple boats and gears including gillnets, shark nets, hook-and-line and traps. These fishers operate some 4 800 mostly unmotorized boats to produce around 6 000-7 000 tonnes of fish annually, valued at over Kshs 500 million. The annual catches have fluctuated between 4 000 and 10 000 tonnes over more than a 20-year period. The prawn fishery from which approximately 400 tonnes are landed each year are fished by commercial trawlers from the two fishing grounds with brackish waters, sometimes causing conflicts between them and artisanal fishers, when the latter's nets are destroyed.

In the 1970s, two surveys were carried out to estimate marine fishery potential. The surveys estimated the potential yield of demersal fish outside the reef of the order of 5 000-7 500 tonnes. The surveys had their own limitations and appear not to have been well designed to test distribution and abundance of tropical water resources and were also part of larger regional surveys that did not concentrate on details relative to Kenya's marine fishery resource.

The offshore fisheries zone is exploited by vessels from Distant Water Fishing Nations (DWFNs) without any local component on the catch and effort. The main species sought are the highly migratory tunas including skipjack, yellowfin and bigeye tuna. Some of the fish are landed in Kenya and transshipped overseas. Others are landed directly in the Distant Nations by the fishing vessels. A tuna factory in Mombasa partly processes the catch from the foreign vessels and the product is exported as tuna loins. Up to 38 foreign fishing vessels have been licensed to fish in the Kenya EEZ. Licence fees earn the Government on average Kshs 30 million per year (approximately US$400 000). The fees charged are US$20 000 per vessel for all foreign fishing vessels, but only purse-seiners pay for their licences. The longliners may find fees inhibitive because according to them, fish is available

in Kenyan waters only approximately 3 months a year. This is a situation that needs to be addressed in terms of revision of licence fees. Very little work has been done on fishery resources in the deeper waters of the Kenyan zone as to establish species composition, distribution, behaviour, and migration. The Kenyan zone is part of the East African coastal region where lack of information on fishery resources and limited financial, material and human resources to carry out research are major constraints to sector's development. Despite of the lack of information, there has been an increase in offshore fisheries in the region beginning in the early 1990s.

5. South West Indian Ocean region

The ocean bordering the East coast of Africa is one of the last areas in the world where fishing is largely unregulated. Although countries in the region, which include Kenya, Tanzania, Mozambique, Comoros, Madagascar and South Africa, have declared 200-mile Exclusive Economic Zones (EEZs), most of them (excluding South Africa) lack the institutional and financial capability to exercise their jurisdictions. While fisheries in the narrow coastal strips are harvested by coastal states, in general, the most valuable and largest offshore fisheries are exploited by European and East Asian distant-water fishing fleets and the greatest part of catches are landed and processed outside the region. Access arrangements are poorly organized and so distant-water operators do little in the way of reporting catches to national authorities in the region. The result is that there is hardly any information on species composition or quantities being taken in commercial catches, let alone the sources and timing of those catches (Habib, 2003).

The tuna fishery has yielded a fair return to the country over the last 5 or 6 years in the form of income from licensing foreign tuna vessels, mainly purse-seiners from Europe. If Kenya is to hold on to this rather *ad hoc* form of income and even improve its value it must find out more about the offshore tuna fishery than is currently known. One way to that end would be to join the Indian Ocean Tuna Commission, a fisheries management body specializing in gathering information on the tuna fisheries in the region. Another way would be to propose that tunas be considered as one of the groups of fishes to be researched by the South West Indian Ocean Project. Ultimately, Kenya must look at the prospect of promoting involvement of its own nationals in tuna fishery, as well as in the more affordable small vessel fishery for large tunas.

6. Fishing access agreements

Kenya has not entered into any fishing access agreements with Distant Fishing Nations but would be willing to negotiate with them for fishing access rights in accordance with the provisions of the United Nations Conference on the Law of the Sea (UNCLOS). However, before the commencement of such negotiations, the country would wish to have sufficient knowledge of its stocks. Towards achieving this knowledge base, the Government requested for technical assistance from Commonwealth Secretariat and was provided with a consultant to carry out a desk study on stocks and come up with recommendations and costs for stock assessment project. The Department would, therefore, seek advice before negotiations on the form and contents of a potential access agreement that would tie DWFNs into a formal relationship with the Kenyan Government with regard to:

- Number of vessels to be licensed by method (gear dimensions to be specified), size, engine capacity, carrying capacity, refrigeration type, etc., with full range of data to be collected on each vessel.
- Access fees and payment arrangements (consideration should be given to minimum five-year or even longer term agreements, with annual escalation of fee levels, or fixed fee for the period of the agreement).

- Marking of vessels, authorized fish species, catch recording systems and areas of authorized access.
- Crewing arrangements to include local content.
- Rules and conditions for permits.
- Rules for disposition of by-catch.
- Rules for transshipping or offloading catches in Kenya and port call requirements.
- Reporting requirements of ship's position and other information.
- Requirement to carry observers and scientific staff, and provide them with access to catches for sampling purposes, when requested and meet the cost of supporting them while aboard the vessels.

7. Fish marketing

The Government has endeavoured to comply with international fish quality and safety standards and needs to build capacity in trade agreements skills, in order to broaden and maintain international market share for fishery products. The marketing of fishery products is vulnerable to unfair application of non-tariff trade barriers such as Sanitary and Phytosanitary (SPS) measures by importing countries. It is, therefore, important that the country actively participates in World Trade Organization (WTO) Agreement protocols and builds capacity in trade issues to help deter unfair trade barriers for Kenyan fish products.

Kenya has been able to penetrate the international market for fishery products and compete well in a liberalized economy, because of its advancement in implementation of fish quality and safety standards. Fish exportations mainly consisting of Nile perch-based products, earn the country approximately Kshs 4 billion in Foreign exchange. There however exist enormous fisheries potential in the Kenyan EEZ whose resources are currently exploited by DWFNs, without commensurate returns from the resource. There is need, therefore, to put in place an effective Monitoring Control and Surveillance System (MCSS) to ensure the DWFNs operating in Kenya's EEZ pay the Government appropriate dues either through negotiated fishing rights and agreements or payment of fishing licence fees. Kenyans are also being encouraged to invest in the EEZ through acquisition of fishing fleets and establishment of fish processing plants along the Kenyan coast.

The Nile perch export business has suffered three fish export bans by the European Union (EU) since 1996, which resulted in decline in fish prices as other markets were sought (Figure 4). The Department, embarked on corrective measures to remedy the situation as well as to ensure that the country is in harmony with EU safety and quality standards in order to fully access the EU market. Currently marketing of fish to the EU, the main importer of Kenyan fish, is through bilateral agreements with individual EU, Member States.

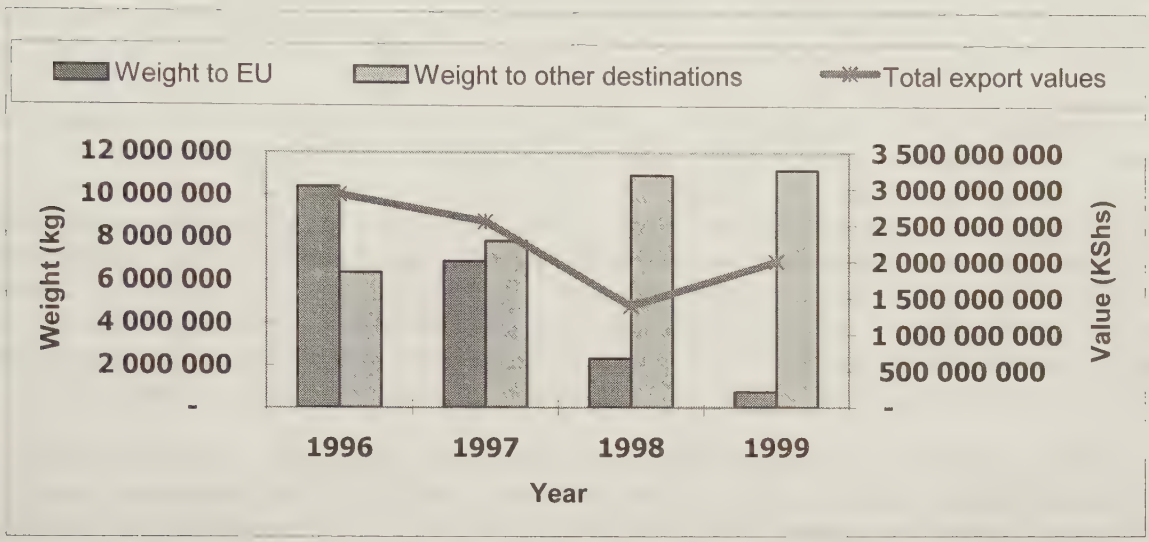
The Ministry is giving priority to the improvement of infrastructure at selected landing sites and other fish quality and safety facilities in order to enhance fish marketing and reduce post-harvest losses. Modernization of fish depots, upgrading of fish roads, provision of electricity, telecommunication access, availability of clean water, establishment of chill rooms and ice making plants are some of the developments planned in the medium term. Other planned developments include establishment of three accredited fish quality laboratories and one referral laboratory in the country. The improvement of fish standards for quality and safety will guarantee fish markets which in turn guarantees revenues for the government and earnings for fishers.

8. Aquaculture development

Aquaculture in Kenya includes fresh water (cold and warm) fish farming and mariculture. The Ministry of Livestock and Fisheries Development has recognized that fishery resources play

an important role in sustaining rural and urban livelihoods in Kenya. Despite this crucial role, the *per capita* supply of fish is declining due to increasing population and demand for fish. The available natural resources are not able to meet this demand. The Ministry is, therefore, taking steps to bridge this gap by facilitating aquaculture growth. These steps would also assist in reducing fishing pressure on the natural fishery resources.

Figure 4: Effect of fish bans on Kenyan fisheries in 1996-1999



During the preparation of Poverty Reduction Strategy Paper for the Agriculture sector, aquaculture was targeted as one of the core activities that can contribute to poverty alleviation in rural Kenya. In this regard, the Ministry is focusing on commercial fish farming through application of research results in the field with contact farmers. It is expected that the contact farmers would in turn participate in extension service delivery to other farmers. This collaborative approach of fisheries Department with farmers has been successfully demonstrated in field days in Central and Western Kenya. The Ministry will continue to promote fish farming by expanding fish farming demonstration centers, improving service delivery systems and developing and introducing enterprise budgets and business plans to facilitate credit access to fish farmers.

In view of the important role aquaculture can play in poverty reduction, the Ministry is focusing on expediting commercialization of fish farming through appropriate transfer of technology in the field by involving contact farmers besides the Government extension workers. Research on pond dynamics has demonstrated that small-scale fish farming can be commercialized through good pond management. The ministry is encouraging and facilitating sharing of information among fish farmers, researchers and extension officers, through field days and farmer's training sessions. The multiplier effect of field days in advancing commercial aquaculture is very encouraging and is being viewed as an appropriate avenue for extension of new and successful technologies. The Ministry will also expedite commercialization of small and medium-scale fish farming by revitalizing departmental fish farming research and demonstration centres throughout the country to enhance service delivery systems.

9. Fisheries potential

Kenya's fisheries potential has not been realized due to various reasons. The Government is now aware of the potential and has started putting measures in place aimed at realizing this potential in the short and medium terms. The first commitment towards achieving this target

has been the recent deliberate recent split of Ministry of Agriculture and Livestock Development into two Ministries in order to bring out fisheries and livestock potential. The newly created ministry is now named Ministry of Livestock and Fisheries Development and for the first time in the History of Kenya "fisheries" appears in the name of a parent ministry, a significant step towards realization of fisheries potential.

The Government is currently focusing on the aquaculture development and exploitation of the EEZ to bring rapid development in fisheries, with a view to alleviating rural poverty, and expediting economic growth. The demarcation of the EEZ in accordance with provisions of the UNCLOS is in progress and strategies to ensure profitable exploitation of the Zone are being put in place. The commercialization of the small-scale aquaculture and transfer of appropriate technology for sustainable utilization of dams and small lakes are some of the short-term plans envisaged to expedite sector's growth.

The surveys on territorial waters carried out in 1970s found that small vessel tuna long lining is feasible from Mombasa in Kenya. A fleet of ten small vessels could comfortably operate out of Mombasa, to fish local stocks of adult yellowfin and bigeye, for the high-priced sashimi market (Habib, 2003). A FAO publication put the potential catch at around 3 125 tonnes per year by such a fleet. Another FAO publication predicted that a ten-vessel fleet fishing 100 days per year could catch 5 000 tonnes annually, at roughly 500 tonnes per vessel.

The Ministry of Livestock and Fisheries Development recognizes the importance of fisheries especially in the poverty alleviation of rural population, due to its rural-based activities. The Ministry is, therefore, supporting the Department to ensure that significant fisheries potential in the country is realized within the medium term.

9.1 Constraints in the fisheries sub-sector:

The sub-sector is unable to realize its full potential due to the following, among other factors:

- Institutional weaknesses;
- Stagnant aquaculture sub-sector;
- Overreliance on capture fisheries, leading to overexploitation and decline in fish stocks
- Environmental degradation;
- Uncertain export market;
- Underexploitation of EEZ by the country;
- Low investment in the fisheries sector, especially the marine fisheries;
- Low funding levels for the Fisheries Department and the sector;
- Fish safety, quality and post-harvest issues;
- Lack of a comprehensive fisheries policy and fisheries master plan for focused development;
- Conflicts between various users of fishery resources.

Some of these bottlenecks are caused by stakeholders weaknesses in articulating a programmatic policy environment which should address incentive regimes. Greater investments require fisheries infrastructure such as roads, electricity, landing beaches, cargo space and fiscal reforms in the area of taxation, exemptions of duty for fishing gear, processing equipments and jet fuels. Deliberate support to aggressive marketing of the fishery products in overseas marketing is also important. Due to these constraints, the sub-sector is projected to grow by only 0.8 percent per year between 2002 and 2007.

10. Fiscal reforms in Kenya

10.1 Economic Recovery Strategy (ERS)

The Government has just finalized the preparation of an Economic Recovery Strategy Paper geared towards the realization of wealth and employment creation covering the period 2003-2007. The Economic Recovery Strategy is a clear road map for the future, which emphasizes specific priority actions that will be implemented to achieve an economic turn around.

To achieve the desired growth and employment creation targets, Kenya will require an increase in the ratio of gross fixed capital formation to Gross Domestic Product (GDP) from 16.8 percent in 2002 to about 23 percent in 2007. Investments, particularly by the private sector, are envisaged to recover through improved governance following implementation of the proposed far reaching reforms. Much of the investment recovery will be financed with domestic savings, which are projected to rise from 10.7 percent of GDP in 2002 to 15.8 percent in 2007. To finance the remaining resource gap, external resources of at least US$2.2 billion will be needed by public sector and US$1.1 billion by the private sector over the next five years.

The Government is also putting in place an investment code to consolidate investment incentives, protection and institutional framework in a single legislation to establish a one-stop office for investment promotion activities. Creating an enabling environment agenda is guided by the country's policy of maintenance of a stable macroeconomic framework within the context of structural reforms that will lead to wealth and employment creation aimed at poverty reduction.

10.2 Fiscal reform and sustainable fisheries

The Kenya Government recognizes and is committed to the Policy of sustainable development through the judicious exploitation and use of its natural resources. This Government commitment is clearly demonstrated by the fact that Kenya has a Ministry of Environment, Natural Resources and Wildlife and recently, the Fisheries Department has been elevated into a full fledged Ministry. The new Ministry of Livestock and Fisheries is responsible for policy formulation in the development and sustainable resources use of fisheries in the country.

The fisheries sub-sector contributes to the country's gross domestic product. The contribution of fisheries to local incomes, subsistence and nutrition is significant as it occurs in areas with the highest incidences of poverty. The ERS is predicated on the country's Poverty Reduction Strategy Paper which seeks to deal with poverty reduction initiatives with the attendant government implementation action plan to emphasize on sustainable development of the huge potential of the fisheries sub-sector in the country.

10.3 Policy reforms in fisheries sub-sector

In order to identify and realize the sector's potential, the fisheries institutions need to be able to perform all the tasks optimally and, therefore, should be given some measure of independence from the larger agencies such as line ministries. Kenya must recognize this reality and give priority to the fisheries sector by either designating agency or authority status to the Fisheries Department or allowing it to plough back some of the revenue it raises for research and development. Such action would enable the country's fisheries agency to properly promote the fisheries sector so that over time, the full potential of the resources can be realized.

To remove the bottlenecks and exploit the enormous potential in fisheries sub-sector to facilitate a sustainable development, the Government is committed to the following policy reform agenda:

- Develop facilitative infrastructure which includes landing beaches, cooling plants and access roads to reduce wastage and achieve the required sanitary and health standards.
- Promote aquaculture to improve food security, nutritional status and incomes.
- Enter into agreements to promote closer regional cooperation in the management and regulation of the transboundary fishery resources including the control of water hyacinth.
- Encourage growth of micro-finance institutions to provide credit to the sub-sector.

10.5 Recommendations

To enhance the growth of fisheries sub-sector, specific sector incentives within the framework of fiscal reforms are urgently required to deal with cost of exploiting fishery resources, processing, preservation and export of the products.

- Exemptions on duties for jet fuel could reduce the transportation costs to the industry by encouraging more exports and increasing market share and foreign exchange earnings.
- To increase funding to the sub sector to enhance research in production and preservation of fisheries species marketable in both local and overseas markets.
- To increase funding for equipments and surveillance of the country's EEZ to stop encroachment by foreign fishing vessels would contribute to wealth and employment creation.
- To integrate the fisheries sector into the country's agricultural commodities export strategy to reduce marketing costs to the sector.
- To develop a strong regional integration networks to benefit from economies of scale and infrastructure development to facilitate export of fishery resources on a sustainable basis.
- Promote local and foreign investments in establishment of fishing processing plants and fishing fleets to tap EEZ resource especially tuna fishery.
- To develop a comprehensive fisheries policy, to include a fisheries master plan in order to expedite growth of the sector through focused strategies.
- Carry out stock assessment and based on information gathered negotiate fishing access agreement that would benefit Kenyans and ensure sustainable exploitation of fishery resources.
- Build institutional capacity through training and involvement of community participation in fisheries management.
- Promote effective use of natural resource rent, through appropriate extraction methods.

All these should provide a situation where benefits to the people engaged in the sector and increased revenues to the exchequer and food security are assured.

12. Conclusion

It is a recognized and accepted fact that the natural resources in the world are under threat from overexploitation and environmental abuse. However, with responsible management, the aquatic harvests which are largely unaffected by natural disasters such as drought or flood, can be sustained for many years to come. It will, therefore, be in the interest of all countries of the world with natural fishery resources to utilize them sustainably through responsible fishing methods so that they can benefit the present and future generations. It is necessary also for the countries harvesting these resources to develop quality assurance systems that will assure safety and quality of fish products to consumers and reduce post-harvest losses. This can be achieved by establishing national, regional and international knowledge bases

on the fishery resources and quality assurance system to enhance exchange and transfer of knowledge and technology. The developed world can play a lead role in this initiative and is, therefore, called upon to transparently assist the developing countries manage their fishery resources and fish quality assurance effectively and efficiently.

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Marine fishery sector in Morocco and tax reform for growth promotion and sustainable management

by

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Introduction

Fishing has played an important economic and social role in Morocco since the beginning of the last century. From as early as 1914, many artisanal boats were fishing sardines and supplying canning factories which had been set up on coastal regions by Spanish and French companies .

However, the marine fishery sector did not reach full expansion until the beginning of the 1960s. The great biological potential of economic zone that was extended to 200 miles in 1981, together with the fact that fishery products are growing in worldwide demand, has opened up profitable investment opportunities for both public and private traders.

These two factors have changed the sector's structure and practices on all fronts; from resource management to commercialization, through to development techniques and institutional organizations. Within 40 years this activity has gone from exclusively artisanal and semi-artisanal fishery targeting mostly pelagic species especially sardines used in canning factories, to a more industrialized activity targeting species of increased export value.

Without massive State intervention via public investment in infrastructure and encouraging private investment, this development would not have been possible. The sector was one of the priority development plans during the terms of office in 1973-1977, 1978-1980, 1981-1985 and 2000-2004. Moreover in 1973, an investment code fostering maritime investment was promulgated. The state also concluded fishing agreements with the European Union (EU), Russia and Japan and their financial and technical returns have contributed to the sector's development.

This expansionist policy quickly produced positive social and economic results, not only within the sector itself but also in the national economy in general. Production went from 200 000 tonnes at the beginning of the 1960s, to 1 million tonnes in 2001. The fishing fleet now has around 3 000 coastal and high-sea fishing vessels and 25 000 artisanal boats. Export of fishery products brings 1 billion dollars into the economy annually and represents 15% of total export value. Moreover, 400 000 people live directly or indirectly of fishing which is the main economic activity in various rural regions.

Consequently, such a social and economic attraction has put growing pressure on fishery resources development, leading to overexploitation of the main fish stocks and with intensified fishing effort, to a drastic fall in return on investments. Towards the end of the 1980s, urgent action needed to be taken towards the state of the resource.

During the 1990s solutions were sought through fishing policies, by implementing a whole range of legislative and regulating measures. In 1973, in addition to establishing fishing rights

on obtaining a fishing licence, various measures aiming at limiting fishing effort were set up (commercial size, gear, season closure). In 1992 a freeze on new fleet investments was decreed, and in 1995 exceptional waiver arrangements of investment codes were repealed.

All these measures helped in reducing the sector's problems, but issues such as resource preservation and long-term management of fishing effort still need to be dealt with. In 2002, a new management system based on total allowable catch (TAC) was introduced for the octopus fishery.

With the introduction of this new system, financing its management cost is required to support scientific research, control, surveillance and information system. Consequently the State was obliged to take a part of the sector's profits.

The marine fishery sector's new development strategy over the last few years aims to create sustainable and harmonious development conditions based on:

- A legislative and regulatory framework for the whole marine ecosystem (new fishing codes).
- Resource management using efficient economic tools (fishing quota management).
- Profit assessment and a means of equitable redistribution (new taxing system and stakeholder participation in management and investment costs).

Characteristics of the Moroccan marine fishery sector

1. Fishery resources

The Moroccan Atlantic zone is one of the most productive in the world due to its hydroclimatic characteristics such as the trade winds to which it is subjected all year round, as well as the rising up of nutriment enriched cold deep waters (Upwelling).

Four fishing zones can be distinguished with relative importance in terms of activity which have undergone many changes throughout time and different developments. The Mediterranean and North Atlantic zone up to ElJadida (35°45'–32°N), zone A from Safi to Sidi Ifni (32°N–29°N), zone B from Sidi Ifni to Boujdor (29°N–26°N) and zone C from Boujdor to Lagouira (26°N southwards).

Moroccan fishing resources are very diverse. However, exploited stocks are dominated by small pelagics and cephalopods. Sardine and octopus are the most important species in total catch from both these groups.

According to hydroclimatic conditions, small pelagic resources are subject to interannual fluctuations in terms of composition and geographical distribution. Sardine biomass evolves irregularly from one year to another, with a general downward trend however, which is more or less marked according to fishing zones.

In the Northern zone sardine captures have gone from 24 000 tonnes in 1993 to less than 5 000 tonnes in 1999, for almost the same fishing effort. In zone A catches have continually fallen since the beginning of the 1990s. There is evidence of overexploitation in zone B due to an increase in fishing effort. Zone C is the only one which is being constantly regenerated.

According to the Institut national de recherche halieutique (INRH) figures, annual exploitable potential of small pelagics is estimated at 1.1 million tonnes, 450 000 of which are sardines.

Other species of varying importance are also exploited within this family of small pelagics, particularly anchovy, mackerel and horse mackerel.

Cephalopod exploitation is relatively recent in comparison to the small pelagics. Commercial fishery only really began at the beginning of the 1960s in the southern region of Morocco between Cape Juby (27°N –30'N) and Cape Blanc (21°N).

Catches are made up almost entirely of octopus, cuttlefish and squid with a predominance of octopus. Landings of the latter (including those from European Community vessels) doubled between 1980 and 2000, ranging from 53 000 tonnes to 1 050 000 tonnes.

Due to intense fishing efforts, these stocks have become overexploited which has led to a decline in the global abundance of the resource, a modification in their composition, a reduction of fishing zone extension and an increase in the average species size. At the same time cephalopod fleet productivity plummeted from 1980 onwards, which led authorities to institute a period of season closure during October.

The INRH estimates the annual exploitable potential of cephalopod catches at around 123 000 tonnes, 88 000 of which for octopus.

Moroccan waters host diverse resources, at different levels of exploitation as well as little or unexploited fisheries with a high development potential. There are also possibilities of redeployment of fishing efforts in order to take pressure off overexploited stocks.

2. Fishing fleets

The following three fishing sectors share Moroccan fishing resources: artisanal, coastal and high-sea.

The artisanal fleet is made up of 5 to 6 m boats equipped with outboard engines. From the 1980s onwards their number increased significantly, from 3 600 boats in 1981 to 25 000 registered in 2000.

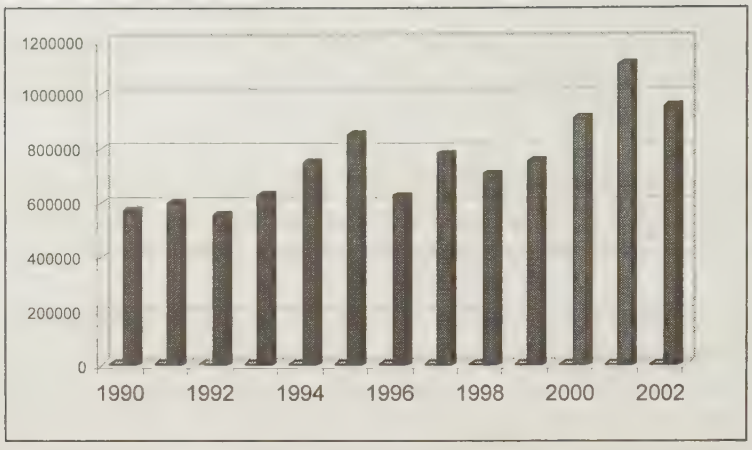
The coastal fishing fleet is composed of 2 500 vessels which represent a global capacity of 84 366 Gross Register Tonnage (GRT). It is made up of 15 to 25 m length purse seines, trawlers, longliners and polyvalent units manufactured locally out of wood. This dilapidated fleet with such a poor technical nature, plays an important social and economic role at a national as well as regional level. It is the main supplier of fresh fish to the local market and to canning industries.

The high-sea fleet developed rapidly after 1973 thanks to State encouragement. It currently has 446 vessels with a global capacity of 144 369 GRT. It is mainly composed of freezer trawlers. The fleet targets cephalopods (octopus, cuttlefish and squid). Production is exclusively destined to foreign markets.

3. Exploitation

The total volume of fishing production is on a steady upward trend. It has gone from around 200 000 tonnes at the beginning of the 1960s to 1.1 million tonnes in 2001.

During the last 13 years, landings have risen at an annual rate of 4%, landings from foreign fleets operating in Moroccan waters within the framework of fishing agreements are not included, nor are a part of artisanal landings or those from non-official channels.



Evolution of fishing production (Source Mer en chiffres)

Two peaks were recorded during this production period, in 1995 (852 000 tonnes) and in 2001 (1.1 million tonnes), each year following the withdrawal of the European Community fleet at the end of the 3rd and 4th fishing agreement.

Coastal fishing accounts for 80% of total landings. In 2002 production amounted to 892 865 tonnes, high-sea fishing recorded 56 451 tonnes and coastal activity 10 771 tonnes, 1 047 tonnes of which were recorded for aquaculture.

Sardines are first in order of importance by species in production with 88% of coastal landings and 80% of total production. Octopus is in second position with 80% of deep-sea catch.

4. Processing and market structure

The fishery products processing industries constitute various units including canning, semi-preserving, freezing and units processing fresh fish, fishmeal and seaweed. In 2002, 732 000 tonnes of coastal catch were processed in these units, i.e. more than 80%.

There are 360 of these establishments, with a turnover of 8 billion DH (Dirhams) which employ 39 000 people, mostly women.

The fishery products processing business is dominated by fishmeal and fish oil production, processing 40% of coastal catch, making a turnover of 450 million DH and generating 1 000 jobs. On the other hand, canning and semi-preserving industries process 20% of catches and their turnover and employment figures are 7 and 27 times more respectively.

Three elements determine distribution, quality, price and availability, particularly in the case of sardines. Fishmeal factories have a major supply during the peak landing season which lasts about 4 months per year. Good quality sardines are sold at a much higher price for local market consumption than for canning factories.

The supply of fresh fish for the local market comes from coastal fishing and to a lesser extent from artisanal fishing. In 2002, 300 000 tonnes of fish were sold locally. Consumption per capita is estimated between 9 and 12 kg.

Fishery products exports amount to around 1 billion dollars, and represent 15% of total export value and 50% of the food processing industry exports.

In terms of quantity and value, Morocco mainly exports frozen cephalopods, particularly octopus, and canned and semi-preserved products.These two families of products alone make up for 88% of export revenue. Morocco's main buyers are France, Italy, Spain, Germany and Japan.

Development of public sector fishing policies

The maritime fishing sector is of particular interest to State development policies due to its economical and social impact on the national economy. The sector accounts for 2.5% of the Gross National Product (GNP) making an annual contribution of 1 billion dollars and employs 400 000 people directly or indirectly. This is all the more important as for certain rural areas, fishing is the main activity which generates employment and income for its population.

Due to such positive effects, the sector has had priority in the various development plans during the 1973-1977, 1978-1980, 1981-1985 terms of office and recently during 2000-2004.

The State made major financial efforts in the 1970s and 1980s, in order to set up basic structures and conditions that were needed for national companies for Moroccan resource development.

On a judicial level, the 1973 Dahir on marine fisheries law established territorial waters to 12 nautical miles, and conditioned fishing access to the obtaining of a fishing licence. In 1981 the Exclusive Economic Zone (EEZ) was widened to 200 miles and that same year a Maritime fisheries Ministry department was created.

In 1973 maritime investment codes were promulgated. According to this regulation, private Moroccan investors were granted, among other advantages from State guarantees on loans up to 70% of total vessel cost, rebate on interest rates, demolition premiums for dilapidated vessels, equipment bonuses, employment bonuses and tax exemption as well as import and business tax exemption. These financial and fiscal incentives boosted fishing fleet investment and allowed the introduction of high-sea fleets.

The repercussions of these expansionist measures were soon felt at resource level at the end of the 1980s. Cephalopod fishery suffered in particular from the increased fishing effort which accompanied maritime investment. Octopus catches dropped steadily between 1993 and 1997, falling from 100 000 tonnes to around half. Yield dropped from 9 tonnes a day to 1 tonne, and high-sea fishing companies went through acute financial crisis. Its intensity was somewhat cushioned due to the relative stability of international prices.

In 1989 the Moroccan government decreed a 1month period (October) of season closure 'repos biologique' for cephalopods and associated species between Cap Boujdor and Cap Blanc.

The institution of a season closure was the premise of a prudent and precautionary policy introduced at the beginning of the 1990s. This 1 month was progressively extended to 7 months per year. In 1992, came a freeze in new fleet investment and a repeal on maritime investment code encouragement.

On an institutional level, in 1997 fishery research was reinforced through the creation of the National Fishery Research Institute (Institut national de rercherche halieutique – INRH) and professional organizations were consolidated through the setting up of four Chambers of marine fisheries with their federation representing artisanal, coastal and deep-sea fishery sectors. These measures were followed by the institution of a Superior Council for Preservation and Exploitation of Fishery Resources.

As a result of these measures, overexploitation decreased in the short term, but a long term solution was still to be found. Season closure 'repos biologique' helped the recovery of octopus productivity. However, the companies' fishing strategy was governed by the production of fishing campaigns following periods of inactivity, which in turn led to an ever greater exploitation of juvenile stock, often making up 40% of total octopus production.

This resource management turned out to be unsuitable and did not bring together both biological requirements and economic viability due to it being based on maximizing catch rather than minimizing costs.

In May 2001 a management plan for octopus fishing was introduced based on a total allowable catch system (TAC). The system allows an annual catch limit of 88 000 tonnes divided up between the three fishing sectors: high-sea, artisanal and coastal.

This new management system was based far more on economic efficiency and optimum use of effort, than on catch maximization. However, within this management system, the problem of investment and public services financing still remained, particularly in scientific research, control, surveillance and the information system.

Fisheries tax system

Characteristics of fisheries tax system

The Moroccan maritime fishing sector has around 30 deductions which are either fiscal, parafiscal or social for services payment.

Access and resource exploitation deductions, refer to fishing licence issuing and renewing, tuna traps or fish farm concessions, to which an additional fishing licence tax is added as well as a fishery research tax (public service tax in aid of the INRH which has been applied since 9 October 2002 to all fishing licence holders).

As well as these taxes, cephalopod and shrimp trawlers pay an additional tax.

The system is essentially composed of three types of deductions:

1. Investment deduction
2. Resource exploitation deduction
3. Fishing activity deduction

Investment deductions

- Registration fees (Capital and Territory)
- Registration number fees
- Nationality certificate renewal fees
- Crew list issuing and renewal fees
- Import taxes and fees on equipment (vessels, equipment)

Resource development deductions

- Tax on issuing or renewal of fishing licences
- Additional tax
- Chartering tax for the financing of coastal fishery promotion and modernization and for scientific fishery research programmes
- Fishery research tax

Fishing activity deductions

⇒ Taxes common to all activities (urban tax, Patent, and other taxes such as IGR, IS, ...).

⇒ Specific deductions (application, determination).

- Market tax paid by ship owners in aid of the Office national des pêches (ONP) for running costs and participation to sector development.
- Communal tax paid by fish wholesalers in aid of the Local Community.
- Regional tax paid by fishmongers in aid of the region.
- Toll tax paid by ship owners in aid of ODEP for fishing ports maintenance costs.
- Weight tax paid by ship owners in aid of ODEP and ONP.
- Tax on fishing bonus (Taxe sur prime de filet).
- Social deductions and others: CNSS, Marine Relief Fund, Association fees, insurance for service incurred injury.
- Fuel: preferential rates.

In 2002, the total amount from fees and taxes for access to fishery resources in Moroccan waters totalled 36.5 million dirhams (US$3.65 million). During the first quarter of 2003, the amount came to 40.8 million dirhams (US$4.08 million), this was after research tax became generalized. This figure represents 2% of the total catch value.

The sector is also subject to a set of deductions (parafiscal and social) at a marketing level. For the coastal fleet the total amount debited from gross sales (volume of production) represents around 17% of their turnover.

Tax system analysis

Current fiscal and parafiscal deductions, respond more to short term budgetary needs than to a resource management strategy via a deduction on economic profits.

The results of these deductions have contributed directly or indirectly to financing the fishery sector, particularly towards infrastructure, fishing villages and scientific research.

However, as a fishery policy tool, the tax system has certain drawbacks_making it not very efficient for resource management measures, giving rise to under-declaring and sales outside official channels. Such drawbacks concern, amongst others, the vast number of deductions, the rates applied and taxation base as well as the quality of services rendered.

For the Ministry of marine fishery, the sector's tax review should have a double purpose. As well as a traditional role as a source of budgetary revenue, it should also represent an important factor in the sector's management policy.

By allowing a deduction of part or all of the income generated by the marine fishery sector, either as a licence or quota tax, or as a revenue tax, the tax system represents an economic tool for fishing effort regulation. In theory, such deductions would put marginal activities in deficit and force companies in difficulty to withdraw. Fishing effort would then drop.

In practice, the results are not immediate as capital and employment redeployment in other sectors are limited. The reactions of such companies may even be the opposite of what is expected, forcing them to increase their fishing capacity in order to avoid a state of crisis.

Therefore, tax deductions can only be considered as an additional tool, to be used concurrently with direct measures limiting effort. They would provide the State with

economic means to subsidize and encourage companies to withdraw from overexploited fisheries and facilitate their redeployment elsewhere.

Conclusion

The management system based on property rights which the Marine Fishery Ministry inaugurated by setting up a total allowable catch system in 2002, needs statutory, institutional and economic reforms for it to be a success.

The Ministry's main reforms have concerned consolidating dialogue with companies by setting up the Chamber of fisheries and the Superior Council for Preservation and Exploitation of Fishery Resources, as well as strengthening the status of fishery research and its capacity. It has also implemented a new fishery and marine ecosystem conservation law.

Work on the tax system reform began a year ago, and its aim will be to identify different discrepancies and their economic and social impact. A reform project will also be put forward.

Contribution to the Workshop on fisheries tax reform

Report of the

Ministry of Fisheries

Republic of Senegal

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PREFACE

The present document constitutes the contribution of the the Senegalese delegation to the meeting on fishery tax reform at the FAO in Rome

This document is a detailed account of the situation of Senegalese fishery resources and its current trends. After a brief review on the importance of fishery economy as well as its contribution to the Gross National Product (GNP), it provides policy and strategy solutions to correct for weaknesses and drawbacks, which are major obstacles to the fishery and aquaculture sector's development.

Regarding the tax system, this document provides an overview of the current fiscal fisheries policy. A study is being launched to provide a detailed estimation of whether the current system should be maintained and whether it is beneficial to fisheries or even to the national economy.

As for fishing agreements, a detailed analysis on Senegalese experience, and results of the evaluation of the Senegal–European Community draft agreement from 1997-2001 are provided.

The resulting effects of the European Union Fishing Agreement (Accord de pêche communautaire – APC) and their relevance are clearly brought into view. Likewise for the use of financial compensation resulting frrom this fishing agreements. The beneficial characteristics of such an agreement are clearly brought to the fore, as opposed to the multiple constraints linked to the exploitation of fishing stocks, the balance of public finance and development in general.

LIST OF ABBREVIATIONS

MP	Ministère de la pêche
CEP	Cellule d'études et de planification
DPCA	Direction de la pêche continentale et de l'aquaculture
FPE	Fonds de promotion économique
DPM	Direction des pêches maritimes
BCPH	Bureau de contrôle des produits halieutiques
CNCPM	Conseil national consultatif des pêches maritimes
CNFTPM	Centre national de formation des techniciens des pêches maritimes
SAGE	Service de l'administration générale et de l'équipement
CEPIA	Caisse d'encouragement pour la pêche et les industries annexes
CCIP	Commission consultative pour les infractions de pêche
DPSP	Direction de la protection et de la surveillance des pêches
CCAL	Commission consultative d'attribution des licences de pêche
CLP	Comités locaux des pêches
CRODT	Centre de recherches océanographiques de Dakar-Thiaroye
OEPS	Observatoire économique de la pêche au Sénégal
FENAGIE	Fédération nationale des GIE de pêche
FNMS	Fédération nationale des mareyeurs du Sénégal
GAIPES	Groupement des armateurs et industriels de la pêche au Sénégal
CNPS	Collectif national des pêcheurs artisans du Sénégal

Introduction

The marine fishery sector in Senegal plays a major socio-economic role. Compared to other primary sector activities such as agriculture and farming, fisheries has recorded growth which has had a major impact on the improvement of coastal population revenues, as well as on investment and fishery product exports.

After considerable growth, the capture fishery sector in Senegal faced major difficulties due to overexploitation of the most commercially important resources and uncontrolled expansion of fishing, processing and canning capacities.

There was a sustained growth of fishery production until 1985, when landings began to regress. Development of artisanal fishing effort was regular and in the meantime, in the industrial fishery sector, the number of vessels remained stable.

The fall in production and the increase in fishing effort have led to conflict and various voluntary incursions of artisanal fishing crafts or industrial fishing vessels in neighbouring country fishing grounds, without authorization.

At the same time, European Community agreements are still being renewed, even though they pose a serious threat to resources already fully exploited by national artisanal and industrial fleets, this however does not apply to high-sea resources.

It has become an urgent necessity for the Government to maintain or re-establish stocks at economically productive levels. Growth in fishing capacity must also be stopped, and fishing effort control improved.

Due to this situation, fishing authorities have set up a new policy and taken action to improve fishery management. The evaluation of the European Union Fishing Agreement (Accord de pêche communautaire) and the prospect of a fishery sector tax reform to be based on results from a recently launched study, fall within this framework.

After a brief look at the current context of fisheries, and a summary of the sector's recent performances and its key problems, this document aims at setting out the different strategies and policies leading to sustainable development in an appropriate bio-economic, administrative and social environment. It then highlights the fishery tax system and national experience concerning fishing agreements.

1. Current fishery context

1.1 State of fishery resources

Senegal Exclusive Economic Zone (EEZ) is characterized by a great biodiversity. Exploited resources belong to four groups with rather marked bio-ecological and socio-economical differences.

The global exploitable potential has not recently been scientifically evaluated[1]. The most recent information from the "Centre de Recherches Océanographiques de Dakar Thiaroye" (CRODT) shows that:

[1] Despite this, the master plan relies on estimation which define Senegalese EEZ exploitable potential in the range of 450 000 tonnes, close to current level of production.

- *High-sea pelagic resources*, given the highly migratory nature of the main species and their vast distribution area (Atlantic), Senegalese EEZ potential is still difficult to evaluate. The latter was estimated between 25 000 and 30 000 tonnes ay the beginning of the 1990s.

  In the last few years the fishing season length was reduced in Senegal and increased in Mauritania, this reflects the above-mentioned downward trend in catch potential.

  Many of the main stocks of commercial species (yellowfin tuna, skipjack, bigeye tuna, swordfish, sailfish), are highly to fully exploited in the Atlantic. Small tuna and similar species (little tuna, atlantic bonito, king mackerel, etc.) that are mainly targetted by the artisanal fishery, would have a lower exploitation rate.

- *Coastal demersal resources*, annual capture potential is estimated at 130 000 tonnes[2]. In general, stocks are fully to overexploited in some cases.

  Preliminary evaluations, carried out within the sub-regional project SIAP framework (October 2001) confirm overexploitation diagnostics or even severe overexploitation of some stocks (grouper, sea bream, lesser African threadfin, blue spotted sea bream).

  Data analysis of five stocks based on the 1981-1999 series, shows an even more alarming situation than before, captures having currently reduced, while fishing effort increased.

- *Deep demersal resources,* the exploitable potential of all species together, is estimated at around 20 000 tonnes of which around 40 to 50% are made up of senegalese hake and 15 to 20% of deep-sea shrimp. These stocks (shrimp and hake) show no signs of over biological overexploitation. Most recent references[3] indicate that despite insufficient biological information and statistics, hake and deep-sea shrimp are not overexploited.

  However a freeze on fishing effort was recommended as management measure of deep-sea shrimp stocks. As for hake, a precautionary principle should be observed, in the management of stocks shared with Mauritania.

- *Coastal pelagic resources*, the global potential can be estimated at over 450 000 tonnes based on the average specific biomass in the last five years.

  Coastal pelagic biomass in the Senegalese-Gambian zone was estimated at 1 450 000 tonnes in November-December 1999, more than 95% of which were sardinellas.

In general, in the northern part of CECAF region, R/V Fridtjof Nansen surveys show high density levels of sardinellas during the last few years. The most recent evaluations, carried

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[2] This evaluation corresponds to the maximum sustainable yield obtained by fitting a global production model to capture series (corrected for freezing vessels discards) and standardized effort of a 150 GRT ice trawler..

[3] It is worth noting that despite fluctuations in biomass observed in Senegalese waters in 1995-1999, artisanal and industrial captures have remained stable at around 350 000 tonnes despite a sharp fall (-38%) in artisanal fishing from 1996 to 1999. A marked rise in exploited stock density (especially sardinellas) on the coastal fringe – not covered by scientific evaluation – may explain the high level of catches observed. Industrial catches were on average 40 000 tonnes during this period, with a steep rise in 1999 (+54%) due to an increase in global biomass in 1999 and in industrial effort (the number of Russian vessels went from 8 to 11 in 1999).]

out within a regional framework, show that sardinellas exploitation levels is probably moderate throughout their distribution area, except for Senegal Petite Côte.

As regards horse mackerel, an upward trend in biomass can be observed throughout the whole region, except in the Senegalese-Gambian zone where low levels of atlantic horse mackerel biomass were recorded between 1995 and 1999.

Table 1: State of large pelagic stock and international recommendations for 1993-1997-2000

Species	1993	1997	2000
Yellowfin tuna *Thunnus albacares* (Eastern stock)	**E:** In full exploitation or even slightly over **R**: Effort not to be increased [1]	**E:** Effort and production at near optimum levels **R**: Effort not to be increased beyond 1992 level; reduce juvenile captures [2]	**E:** Effort and production at near optimum levels **R**: Effort not to be increased beyond 1992 level [3].
Bigeye tuna *Thunnus obesus*	**E:** Stock under-exploited, F < Fmsy. **R**: Increase in effort possible [1]	**E:** A surge in catch, biomass in decline; over-exploitation. **R**: Reduce captures to 60-70 000 tonnes and juvenile catch. [2]	**E:** A surge in catch, biomass in decline ; over-exploitation. Mortality higher than MSY level and decline in stock **R**: Reduce captures to at least 80 000 t and more for regeneration of stock [3]
Skipjack *Katsuwonus pelamis* (Eastern stock)	**E:** No evaluation carried out since 1984. Record catches in 1991. **R**: none. [1]	**E:** Overexploitation level attained **R**: None. [2]	**E:** No new evaluation in 2000 (Overexploitation level attained in 1997). **R**: None. [3]
Swordfish *Xiphias gladius*	**E**: Concern for stock, particularly in the south **R**: No explicit recommendation. [1]	**E**: Stock overexploited and in decline. Current catches non-sustainable **R**: Substantial reduction in catch [2]	**E**: Stock overexploited and in decline. Current catches non-sustainable **R**: Substantial reduction in catch. [3]

Sources : [1] ICCAT/CICTA, 1993. Report on biennal period 1992-93 (Ist part, Annexe 14)
[2] ICCAT/CICTA, 1997. Report on biennal period 1996-97 (Ist part).
[3] ICCAT/CICTA, 2001. Report on biennal period 2000-01 (Ist part, Annexe 9).

Table 2: State of small pelagic and demersal stock and recommendations in 1993 and 1997

Species	1993	1997	2000
Sardine	**E:** **R:**	**E:** Variable stock. [4] **R:**	**E:** Risk of over-exploitation [8] **R:** Reduce fishing effort
Sardinella *Sardinella (aurita & maderensis)*	**E:** Moderate rate of exploitation except in Petite Côte. **R:** Moderate increase in effort offshore . [2]	**E:** Abundant stock. [4] **R:**	**E:** Exploitation probably moderate (from Morocco to Senegal) except in the Petite Côte in Senegal [8] **R:** Increase in fishing effort possible, except in Petite Côte in Senegal [8]
Horse mackerel *Trachurus* spp.	**E:** Moderate rate of exploitation, increase in biomass after a minimum in 1983. **R:** Possible Increase of effort. [6]	**E:** Variables stock. [7] **R:**	**E:** Increase in biomass (except in Senegal) with a drop in 98/99 for horse mackerel. [8] **R:** Increase in fishing effort possible (with fishing effort follow-up and control needed for Senegal and Morocco) [8]
Senegalese hake *Merluccius senegalensis* (1)	**E:** Insufficient data. [1] **R:**	**E:** **R:**	**E:** Non-exploited stock [8] **R:** Increase in fishing effort possible [8]
Sole *Cynoglossus* spp. (1)	**E:** Steady decline since the 1970s. [3] **R:**	**E:** **R:**	**E:** **R:**
Coastal demersal fish (1)	**E:** General decline since 1980, particularly breams, groupers. [3] **R:** Stabilize effort to 1992 level. [5]	**E:** **R:**	**E:** Global overexploitation and specific : serranidés (grouper), sparidés (sea bream), lesser African threadfin [10] **R:** Decrease fishing effort [8]
Octopus *Octopus vulgaris* (1)	**E:** Stock in expansion. [3] **R:**	**E:** **R:**	**E:** Highly variable stock [11] **R:**
Cuttlefish *Sepia officinalis* (1)	**E:** Stock in expansion. [3] **R:**	**E:** **R:**	**E:** Variable stock [9] **R:** Increase in fishing effort possible [8]
Deep sea shrimp *Parapenaeus longirostris* (1)	**E:** Insufficient biological data. **R:** Manage cautiously. [1]	**E:** Stock fully exploited. [4] **R:**	**E:** Stock not overexploited [8] **R:** Freeze in fishing effort. Lack of statistics and biological information [8]

(1) Only the Senegalese EEZ is concerned with stock diagnostics and recommendations.

Sources of table 2:

[1] FAO, 1990. Rapport du groupe de travail sur les merlus et les crevettes d'eaux profondes dans la zone nord du COPACE. COPACE/PACE Séries 90/51.
[2] FAO, 1993. Groupe de travail ad hoc sur les sardinelles et autres espèces de petits pélagiques côtiers de la zone nord du COPACE. CRODT, 29 novembre-3 décembre 1993. COPACE/PACE Séries 91/58.
[3] Gascuel, D. et Thiam, M. 1993. Evaluation de l'abondance des ressources démersales sénégalaises: estimation par modélisation linéaire des PUE. *In*: L'évaluation des ressources exploitables par la pêche artisanale sénégalaise. Symposium de Dakar, février 1993. Barry-Gérard, M., T. Diouf et A. Fonteneau (eds.). ORSTOM, Colloques et Séminaires, p. 191-213
[4] FAO, 1998. Questions et tendances du développement des pêcheries dans la région et leur impact sur la sécurité alimentaire. 14e session du COPACE, Nouakchott (Mauritanie), 6-9 septembre 1998. CECAF/XIV/98/4.
[5] FAO, 1995. Rapport de la dixième session du groupe de travail sur l'évaluation des ressources. Accra, Ghana, 10-13 octobre 1994. FAO Fisheries Report FIPL/R511.
[6] FAO, 1993. Evaluation des stocks et des pêcheries mauritaniens. Voies de développement et d'aménagement. Rapport du 3e groupe de travail CNROP, Nouadhibou, Mauritanie, 20-26 novembre 1993. COPACE/PACE Séries 95/60.
[7] FAO, 1998. Questions et tendances du développement des pêcheries dans la région et leur impact sur la sécurité alimentaire. 14e session du COPACE, Nouakchott (Mauritanie), 6-9 septembre 1998. CECAF/XIV/98/4.
[8] FAO, 2000. Etat d'exploitation des stocks halieutiques et aménagement des pêcheries dans la zone COPACE. Première Session du COPACE, Abuja (Nigeria), 30-31 octobre 2000. CECAF/I/2000/Inf.4 F.
[9] CRODT, 2001. Situation des ressources halieutiques sénégalaises et possibilités de pêche. Rapport technique, mars 2001, 9 p. + 8 planches.
[10] Laurans, M.; Barry-Gérard, M. et Gascuel, D. 2001. Diagnostic de cinq stocks sénégalais par l'approche globale (*Galeoïdes decadactylus*, *Pagellus bellottii*, *Pseudupeneus prayensis*, *Pagrus caeruleostictus*, *Epinephelus aeneus*). *In* Document technique No. 2, Rapport de la réunion de Mindelo (Cap Vert), 10-12 octobre 2001.
[11] CRODT, 2000. Rapport du programme de recherches sur les céphalopodes benthiques (poulpes) et leur aménagement

1.2 Recent sector performance

1.2.1 Fishery contribution to the Gross National Product (GNP)

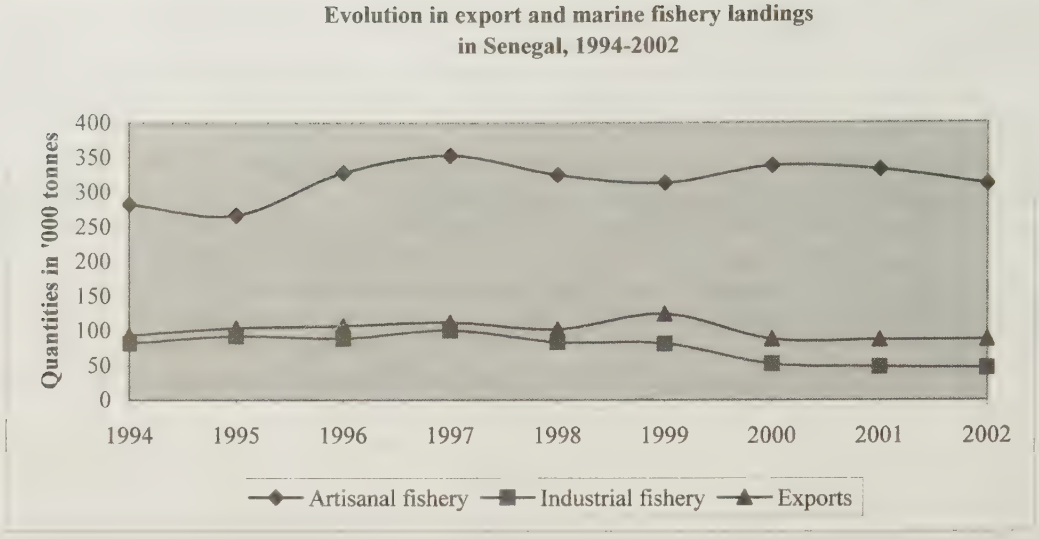
The fishery sector in Senegal is comprised of three different segments of activity: maritime fishery, continental fishery and aquaculture. Most of the activity is in maritime fishery.

Maritime fishery products play an important role in people's diet, providing 75% of animal protein.

During 1990-2000, the fishing sector represented on average 11% of GNP's primary sector. It was also in third position for sectorial GNP contributions after agriculture and farming. In comparison to the economy's total GNP, fishery contribution during this period was on average 2.5 to 2%.

The fishery sector has an even stronger incidence on external balance. During 1990-2000, it provided an average of 37% of exports in terms of value. Making it the largest exporting sector, before groundnut (12%) and oil products (11%).

Growth in fishery activity has been spectacular since the middle of the1960s. Landings which totalled 50 000 tonnes in 1965, reached 358 300 tonnes in 2002 (see Figure next page).



In 1999 export turnover from landings and fishery products is estimated at 278 billion FCFA.

The fishing sector's added value is estimated at 199 billion of which 60% from captures and 40% from processing.

From a beneficiary point of view, 25% passes to the State (5% of direct added value and 30% of indirect added value) while the "employees" benefit from 46% of the flow (39% of direct added value and 49% of indirect added value).

Table 3: Synthesis of the added value created by the Senegalese fishing industry (in million FCFA)

	Direct A.V.	Indirect A.V.	Total A.V.	Direct A.V. %	Total /% A.V. Industry
Industrial fishery	7 887	16 233	24 120	33%	12%
Artisanal fishery	31 958	20 690	52 648	61%	26.5%
Artisanal processing	1 049	1 912	2 961	35%	1.5%
Fish trade – processing units	6 154	85 361	91 515	7%	46%
Fish trade – domestic market	1 396	4 481	5 877	24%	3%
Fish trade – local consumption	1 186	938	2 124	56%	1%
Processing units	764	7 030	7 794	10%	4%
Fishmongers	82	876	944	9%	0.5%
Canning factories	3 085	5 429	8 514	36%	4%
Fishmeal	746	2 163	2 909	26%	1.5%
Total	54 307	145 113	199 406	27%	100

Source: APC evaluation report, 2001

In the fisheries sector as well as in processing and marketing, employment figures are estimated at a total[4], of 600 000, mostly in artisanal fishery and artisanal processing. The sector's workforce represents 17% of the working population: one out of every six working Senegalese does so in the in the fishery sector.

1.2.2 Key sector problems

Despite the above-mentioned results, the Senegalese fishery sector is faced with overexploitation of coastal demersal resources, national fishery overcapacity and an increasing demand in fishery products.

Taking into account the current situation in fisheries, changing trends both domestic and foreign and policy organization, the different types of problems to resolve are:

(i) problems concerning sustainable management and the reconstruction of fishery resources (reduction of artisanal and industrial fishing effort, adapting industrial processing capacities, etc.);
(ii) the sector's poor governing capacity;
(iii) meeting population, industry and foreign market fishery product demand, without increasing pressure on resources;
(iv) problems concerning optimization of the use of fishery resources;
(v) poor organizational, analytical and decision-making capacities from the sector's operators;
(vi) lack of communication between the sector's operators;
(vii) lack of appropriate financing measures for the different activities.

1.3 Current policies and future reforms

In November 2000 national meetings on fisheries and fish farming were the starting point of the work towards current fishing and fish farming policies in Senegal.

The new sectorial strategy gives priority to the management of access resources , before reinforcing development options. Thus the fisheries institutional framework has been re-examined (decree No. 2000-833 of 16 October 2000) in order to take into consideration this major concern and a plan to review the juridical and statutory framework is in process.

1.3.1 Institutional and legal framework

i) Institutional framework of marine fisheries

The fisheries Minister is in charge of the fisheries department, the latter has extensive power (conferred) by decree. He has an office at his disposal as well as attached services and national director offices.

The Fisheries Ministry's main institutions

- Marine fisheries Department (Direction des pêches maritimes – DPM): The marine fisheries department deals with setting up Government-defined policies within the framework of fisheries resource management and exploitation. The main services which make up the DPM are, the industrial fishery division, the artisanal fishery division, the

[4] Sectorial study, reference year 1996, op. cit.

fishery products control bureau, as well as regional services within each of the seven Senegalese maritime regions.

- Continental Fisheries and Aquaculture Department (Diretion de la pêche continentale et de l'aquaculture – DPCA): this is a recently created department. It deals with setting up policies concerning continental fisheries and aquaculture. Due to overexploitation of fishery resources, continental fisheries and aquaculture could be developed in order to contribute towards the diversification and improvement of annual fish, crustacean, mollusc and seaweed production.

- Fishery Protection and Surveillance Department (Direction de la protection et de la surveillance des pêches – DPSP): was also recently created, following the decree No. 2000-833 of 16 October 2000. The DPSP's mission is to ensure the protection and surveillance of the EEZ so that fishing regulations are respected. There are three sections to the DPSP (administrative, operational and scientific), as well as coastal stations. It has a permanent staffing as well as contracted observers.

- Planning and Study group (Cellule d'études et de planification – CEP): was also recently created and is the result of a merger between the economic research institute and the support group for sustainable fishery development. The CEP is responsible for carrying out prospective and strategic studies, planning coordination within the Department, monitoring and evaluation of projects and programmes, it also deals with the sector's information management.

- Centre for Artisanal Fisheries Improvement and Experimentation (Centre de perfectionnement et d'expérimentation pour la pêche artisanale CPEP, ex-CAEP) has been modified in order to adapt his assignments to the new sector's strategic orientations. The CPEP deals with artisanal fishermen training, as well as experimenting and diffusion of artisanal fishery techniques and technology .

- National Marine Fishery Training Centre (Centre national de formation des techniciens des pêches maritimes – CNFTPM): deals with training marine fishery technicians. Set up by decree No. 91-1349 of December 1991, the centre has taken over the oceanographical and fishery technicians' school. It has opened up to other levels of training. The majority of the Ministry civil servants up to category B, have come from this centre.

Other institutions or dialogue groups

- Centre for Oceanographical Research: deals with resource and exploitation systems follow-up. It also aids the Fisheries Ministry in scientific assessment and in taking fishery decisions and drawing up policies. The Centre de recherches océanographiques de Dakar Thiaroye – CRODT) is attached to the Ministry of Agriculture. Its financing however is provided by the Fisheries Ministry. Its 2001 budget came to 458 million FCFA, 200 million FCFA of which were provided by the Fisheries Ministry.

- Co-management structures: these structures were established by the 1998 Fishing Code. The Conseil national consultatif des pêches maritimes (CNCPM) and local artisanal fishery councils will, in theory, have major fishery management responsibility.

- Advisory Commission for fishing licence issuing: it plays a major role in fishery management concerning fishery regulation measures; it examines fishing licence

applications and advises the Minister who is the final decision-maker. Professionals are calling for it to be changed to a debating commission.

- Professional organizations: have developed and have been increasingly implicated in fishery management in these last few years. The most prominent organizations in the industrial sector are the Groupement des armateurs et industriels de la pêche maritime au Sénégal (GAIPES) and l'Union des pêcheurs et mareyeurs exportateurs du Sénégal (UPAMES). In the artisanal sector they are, la Fédération nationale des groupements d'intérêt économique de pêcheurs (FENAGIE-PÊCHE), la Fédération nationale des groupements d'intérêt économique de mareyeurs du Sénégal (FENAMS), le Collectif national des pêcheurs artisanaux du Sénégal (CNPS), l'Union nationale des GIE de mareyeurs du Sénégal (UNAGIEMS). Such structures often benefit from foreign financial support.

ii) Marine fisheries juridical and statutory framework

A revision in Senegalese marine fishing rights took place in 1998. The basic legislative and juridical framework which governs living marine resources exploitation in the Senegalese EEZ has not evolved with changes or restrictions which have arisen progressively.

The resulting Marine Fishing Code encompasses resource conservation and management fishery measures, which include the following major innovations:

- institutional management mechanisms (introduction of annual and long-term fishery management plans, setting up of a Conseil national consultatif des pêches maritimes and local fishery councils, an advisory commission for fishing licence issuing, etc.);

- indirect control of fishing effort mechanisms;

- coastal zone management measures and a Code of Conduct for responsible fisheries.

However certain aspects of this law need to be improved. The decision-makers in marine fishery management need to have a certain flexibility, as biological, socio-economic, political and technical conditions that influence fishery activities often evolve rapidly.

The 1998 fishing law took this into account, but the current evolution of the sector and constant changes, call for it to be reviewed.

1.3.2 Sustainable development policies and strategies

During the last three years, the Fisheries Ministry has prepared a sector development strategy. This document[5] puts forward a detailed analysis of the sector's problems and defines six objectives:

- to ensure sustainable management of marine and continental fisheries, as well as aquaculture while maintaining economic viability;
- to satisfy local fish demand;

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[5] -Diagnostic, stratégie et plan d'action de développement durable de la pêche et de l'aquaculture; *Note de synthèse,* août 2001.
-Pêche maritime et continentale, aquaculture; analyse descriptive et diagnostic, *Tome I.*
-Stratégie de développement durable de la pêche et de l'aquaculture, *Tome II.*
-Plan d'action à moyen terme de développement durable de la pêche et de l'aquaculture, 2001-2007, *Tome III.*

- to modernize artisanal fishery;
- to increase added value of fishery products;
- to develop an efficient public financing system of private fishery and aquaculture activities;
- to strengthen regional and international bilateral cooperation in fisheries.

In order to reach these objectives, the actors concerned identified a global strategy highlighting the following directions:

(i) At resources management level, priority is given to regulation concerning EEZ resource access and to the setting up of artisanal and industrial fishery management plans;

(ii) As for regulations, modern resource management concepts have been introduced: fishery management plans, and dialogue groups between administration and fishery professionals, as well as between-state fishery cooperation.

The law comprises strict measures which could help control expansion of fishing capacity, and stringent conditions for foreign vessels participating in fishing agreements, concerning the exploitation of certain stocks.

It lays down a set of principles leading to more stringent regulation concerning artisanal fishery. Monitoring, control and surveillance of fishing operations are clearly specified and developed, to preserve operators' rights.

It plays an important role in the management of marine ecosystem and marine culture. It redefines conditions, more strictly, of vessels chartering under foreign flags.

However the law is not fully applied and certain aspects need improving in order to adapt to the sector's evolution

(iii) The setting up of an institutional and economic environment which is more adapted to the sector's development needs; in this respect the strategy insists on having an administrative reorganization and a fisheries tax system which would conform to the sectorial policy's new position.

(iv) Fishing agreement cooperation between Senegal and other countries of the region, in order to provide supplementary catch for artisanal and industrial fishery.

1.3.3 The main future reforms

The aim of these reforms is to improve the sector's contribution to the national economy (to generate wealth and employment) and to fight poverty.

Future reforms favour above all, the management of access to resources, before reinforcing development options. The following actions will be given priority:

1° - Opting for a new fishery resources management system

Within this framework, provisional results from **the national workgroup to define a fishing rights attribution system** in Senegal waters have led to set down the following guidelines:

(i) For industrial fishery, a unique system based on quotas may be adopted, together with delimitation of exclusion zones, so as to protect specific zones for artisanal fishery, reproduction zones and eventually marine parks;

(ii) Artisanal fishery targeting cephalopods and demersal species could initially be controlled through a licensing system which, in future could be associated with an artisanal fishery quota system (according to category in specific zones);

2° - Setting up of a management plan for the industrial fishing fleet

Firstly, the industrial fishing fleet must be reviewed in order to check that conditions granting trawling under the Senegalese flag are respected and evaluate the contribution of fishing companies to the GNP. Once this work is carried out, a master management plan can then be set up.

Within this framework, the fishing fleet audit will enable decisions to be taken, to reduce industrial fishing capacity to match the production capacity of the resource.

3° - Adapting processing capacity to potential of capture

The restructuring of the fishery processing industry, aims to adapt its capacities so that future fish landings may be processed under optimum conditions.

The prerequisite of adapting investment to capture potential, in waters within national jurisdiction, is to set up a master plan for the fishing fleet (see above).

4° - Reducing pressure and on artisanal fishery capacity

Senegalese fishery management will have little hope of succeeding without control or even a freeze in artisanal fishery capacity. Therefore, thought needs to be given to cooperation programmes with United Nations institutions (World Bank and FAO) in order to identify the most effective solutions to reduce and control canoe fishing capacity as well as appropriate support measures.

5° - Institutional adjusting and elimination of governance constraints

Structures and means must be adapted and reorganized in order to strengthen sectorial institutions analytical and decision-making capacities.

Past efforts used in order to tackle the sector in crisis, had largely failed due to socio-political realities (lack of transparency and efficiency, political interference and actions governed by profitability, etc.).

A revival of the sector demands: (i) transparent and clear regulations, (ii) an improvement in regulations and institutions, (iii) changes in behaviour within politics.

In order to do this, a special independent commission will be set up in relation with the Ministry of Economy and Finance and the Fisheries Ministry, which will launch and run a programme for the redeployment of marine fisheries and aquaculture promotion.

6° - Setting up a fisheries restructuring fund

The restructuring of the Senegalese fishing sector will require considerable financial resources. The application of the above-mentioned policies and strategies will result in job losses, a ban on gear and fishing techniques, a redeployment of those concerned, a taxation of non-profit making segments, and tax facilities granted to industries generating sectorial wealth.

The cost of the sector's restructuring will be financed by the State and its development partners within the framework of a restructuring fund. This fund would finance:

- Costs involving the promoting and use of selective fishing techniques;
- Ship owners' reconversion costs, in relation to a reduction in trawl fishing capacity;
- Artisanal fishing reconversion costs in relation to a reduction in artisanal fishing capacity;
- Costs in relation to cuts in vessel operations and land-based industries;
- Subsidy granting to profit making segments.

7° - Information and operators' awareness

In the different fishing practices and policies, communication has always taken a back seat. The success of the fishing sector's restructuring will depend on the results of the communication strategy and policies implemented.

In the past, rehabilitation and rational management policies have been damaged by pressure from industrial and artisanal fishery operators, wanting to maintain a status quo and the threat of social and political measures limiting or even restricting expansion of fishing effort.

The aim here is to set up information and awareness programmes for organizations in the process of restructuring their fishing fleet, processing or canning industry.

The objective is to instil a management culture and the notion of responsible fishery into those concerned via training and awareness programmes.

2. Fisheries tax system reforms and fishery agreements - examples

2.1 The tax system in fisheries

2.1.1 Current tax systems in fisheries

The fishery sector dynamism as well as its economic and social results are due to the States' financial support.

The State has contributed a great deal to the development of the fishery sector via direct or indirect aid to the industrial and artisanal sector. The Senegalese State policy backing capture activity and processing, was mostly based on tax facilitating measures and subsidies.

As far as artisanal fishery is concerned, provision of tax free inputs such as tax free fuel, engines, fishing gear and various imported material is granted. Such aid contributes significantly to the profitability of artisanal fishery.

As for industrial fishery, State intervention concerns tax free fishery input as well as tax facilities granted to export companies through various systems such as: Industrial Free Zone

(Zone franche industrielle – ZFI), in Free Points ('Points francs – PF) or within the framework of Free Exporting Enterprise (Entreprise franche à l'exportation – EFE).

Fishing companies benefit from exemption on: VAT, customs rights on local buying, added value, customs administration tax (Timbre douanier), registering tax, Patent and financial contribution.

Table 4: Comparison of tax systems applicable to fishing sector companies

System	Zone franche industrielle de Dakar ZFID	Points francs	EFE
Property arrangement system	Locataire de la ZFID	Free	Free
Administrative system	Administration Spéciale	Droit commun	Droit commun avec déclaration préalable
ZFID Tax	Yes	Yes	No
Compulsory amount to be exported	60%	60 %	80 %
Customs system	Total exemption	Total exemption	Total exemption
Customes proceedures	In ZFID, without guarantee or escort	Droit commun with escort	Guarantee and escort exemption
Tax exemption	Total	Total	Total except corporate tax 15% and tax on distributed dividends
Employment subsidies	Yes but controversial	Yes in certain cases but controversial	No

Source: MP/CEP

The fishery companies are only obliged to declare imports and exports, local buying, local sales and the declaration of accountancy statistics.

Which means that State resources from taxes are not significant (see table above). Fishing companies benefit from a considerable financial income.

An evaluation of the fishery sector's contribution to the State budget will determine precisely the resources generated by fishing activity.

2.1.2 Future fiscal reforms

In general terms, fiscal policy simplification will be implemented in the next three years in order to increase yield. Before the end of June 2003, the government will set up a study to evaluate the effect of a reduction in the marginal taxation rate of direct taxes. Concurrently, action towards a widening of the taxation base will continue, via progressive taxation of unstructured sectors.

As for investment code reforms, the government policy will make sure that they are rational, indiscriminate and that they will preserve public finance viability. The government will also consult the International Monetary Fund concerning the main elements of the fiscal reform, in the first Programme review at the latest.

More particularly, with the fishery sector faced with overfishing and overcapacity, the question of maintaining the tax aid system as we know it, is brought to light. The current tax aid system could be seen as an indirect incentive to overcapacity and overfishing.

Hence the study on the future fishery tax system. As a result of this study, a new tax system will be envisaged for certain non-profit making segments of the sector, which benefit from specific economic regimes

2.2 Senegalese experience regarding fishing agreements

Marine fishery is the most directly concerned by agreements with the European Union. The two vital components of which are artisanal and industrial fishery.

The European Community fishing agreement (Accord de pêche communautaire – APC) as signed by Senegal, specifies the level, conditions of attribution and of use of access rights to Senegalese EEZ fishery resources for European vessels.

2.2.1 National fishery policies and their compatibility with fishing agreements

The first generation of agreements signed with northern countries (bilateral agreements signed with France in September 1974, Italy in January 1975 and Spain in May 1975) were very unbalanced.

These countries granted Senegal loans in exchange for fishing access for an unspecified number of their vessels.

Furthermore, these agreements were ill-defined as to the conditions of the fishery exercise, as well as being long term (4 to 6 years).

During an inter-departmental committee on 21 May 1979, concerning marine fisheries, the Senegalese government laid down new guidelines for fishing agreement negotiations:

- nationals are to be given priority to resource exploitation and processing;
- the number of foreign vessels to be limited, taking exploitable potential into account;
- access fees to be charged in order to obtain fishing licences;
- financial compensation to be demanded so as to support national fishery development;
- some or all catch to be landed in Senegal in order to supply land-based processing units.

These criteria have since been used as a negotiation base for the application of the different agreements, leading to the following principles:

- Senegal is to agree to grant fishing rights to European Community vessels, without reciprocity;
- in exchange for these fishing rights, the European Community is to pay the Republic of Senegal a financial compensation, as well as licence fees directly paid by the ship owners.

At the beginning of the 1990s, the agreement completely changed the negotiation's environment, i.e. the terms and beneficiaries of the fishing agreement may influence long-term strategic choices and short-term tactic decisions. They concern:

- fishery resources and exploitation in space and time; particularly recent management trends;
- sociology, i.e. the relation between local fishing communities reacting to industrial fishery vessel competition;
- methods of application of the agreements with the European Union.

Resulting guidelines from national fishery talks (November 2000) state that the negotiation strategy should take into account:

- current national fishing capacity ;
- country's needs of financial resources;
- the urgent need of a mutually advantageous agreement based on both parties' aims, for sustainable development in fisheries (conditions, appropriate techniques);
- the need to reduce fishing pressure.

The last Senegal/European Union fishery agreement integrated artisanal fishery development with scientific research, fishery surveillance and institutional support.

However, despite well defined actions, the agreements always follow a commercial logic (fishing rights in exchange for financial compensation) and lie in a generally unfavourable fishing context, which is unsustainable and irresponsible.

«**Senegalese resource access control is still today a major, unresolved problem concerning fishery management and the development of a national sector**».

The fishing agreements themselves should not pose insurmountable problems, beyond geo-strategic stakes outside the fishery sector. They should be seen more as an indication of the management system's weakness and due to this weakness are an aggravating factor in a badly controlled and inefficient system with regard to conservation objectives[6].

These last two points bring us back to the vital question of the current Senegalese fishery context: fishery resource access (a national heritage) for whom, under which conditions and who is to benefit from the profits?

The Senegal/European Union fishing agreement is currently faced with different problems, the main one is that it is part of commercial arrangements that were favourable to product export, thus inducing pressure on food security and exported ressources.

The fishery environment was not sufficiently taken into account, putting the agreement in an awkward situation facing international regulations which were more restrictive than previously.

Increasing European fleet pressure on resources had an undeniable effect on stock decrease. The question of its reconduction is currently being debated.

The fishery agreement's complementary nature was theoretically the main reason it was concluded. The existing gulf between theory and practice has not stopped widening since.

In the 1980s, the fishing agreement coincided with the development of the of artisanal fishery. From there on, landings of the latter experienced a spectacular increase, from around 150 000 tonnes at the beginning of the 1980s to 250 000 tonnes from 1990 onwards and 358 300 tonnes today.

As for coastal, pelagic and demersal resources, the national fleet seems, not only able to exploit stock almost entirely, but to exploit them fully. If however, pelagic resources are not fully exploited by artisanal fishery, it is more to do with an increase in capital cost, or the growing attraction of export species for the exploitation, than to productivity or capacity

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[6] MGP-IDRA: Report on the evaluation study of the Senegal-European Community draft agreement

problems. According to available scientific data, complementarity would in principle, only concern high-sea resources.

Even if complementarity between national and foreign fisheries exists, both fleets are competing on the same fishing zones. There is generally a double competition: national and foreign industrial fisheries are in opposition, particularly concerning coastal demersal crustaceans and cephalopods, as well as artisanal fishery and industrial fishery (local and foreign).

Conflict between these two types of fisheries has worsened since artisanal fishery development has been put in a situation where it now competes much more in the high sea with industrial fleets. Such overlapping not only result in stock depletion, particularly coastal demersal, but in fishing gear destruction and collisions often costing human lives.

The Senegalese fishery overcapacity, particularly towards demersals, has resulted in resource overexploitation. With artisanal fishery added effort on export species, comes a sharp decline in average size of individuals captured and in national fishery yield, despite a high fishing effort. Hence less fishery products are available in the local market.

The problem could have worsened if the pelagic fishing quotas, granted in the 1997-2001 agreement with the European Union, had been used. More than 80% of artisanal fishery captures are pelagics mostly intended for national consumption. Considering their role in food security, pelagics are extremely sensitive resources.

In general, fishing agreements are aggravating factors to fishery resources, which are already fully exploited by industrial and artisanal national fleets, except for high-sea resources.

Fishing agreements also participate in the gradual opening up of the Senegalese fishing sector, not only directly, by subtracting a certain quantity of the resource from national fishermen, consumers and processors (although the latter have contingents which they must land), but indirectly, by setting up cooperative strategies between national and foreign fisheries, diverting part of the national effort which would satisfy domestic demand.

2.2.2 Impact of the fishery agreement with the European Union

This analysis on the effects of European fleets in Senegal is taken from the evaluation report on the Senegal-European Union agreement 1997-2001.

2.2.2.1 Area competition in fishing zones

There is competition between national and European Union fleets, but also with other foreign fleets targeting the same resources. Competition concerns mostly coastal species exploited on the continental shelf and on the slope.

Such competition can be seen through conflict concerning resource access and between different techniques, resulting in gear destruction or even collisions with artisanal fishery units. These are often badly indicated, and shifting outside their exclusive 6 or 7 mile zone, due to coastal stocks exhaustion.

2.2.2.2 Economic impact from European vessel activity

During this period, average annual European fleet landings in Senegal were of 349 tonnes of demersals used in processing units and 17 042 tonnes of tuna used in canning factories.

They generate direct and indirect added value, totalling respectively, 5 579 and 4 881 million FCFA.

Senegalese workers aboard European vessels are fishermen but also observers (80 people). Fishing jobs greatly exceed quotas fixed by the draft agreement due to the good reputation of Senegalese fishermen.

Total expenses for personnel (Fishermen's salaries and State expenditure) concerning European boat activity is on average between 254 and 364 million FCFA annually for an equivalent number of jobs respectively between 240 and 370.

Added value generated by the employment of observers is estimated at 288 million FCFA. Other flows generated by European fleets were valued using data supplied by chartering agents (See Table 5).

Table 5: Incidence of European vessel activity in the fishery sector

Expenses	Total in %	Expenses	Total in %
Fishermen's salaries	47 %	Provisions and supplies	5 %
Harbour charges	5 %	Maintenance and repairs	17 %
Handling charges	4 %	Consignment charges	7 %
Security	0,1 %	Other charges refacturées	14 %
		Total	100%

Source: OEPS survey using sample of chartering companies

Boat activity incidence on the sector amounts to 10 billion FCFA and show a relative balance between direct added value (53%) and indirect (*see* Tables 6 and 9)

Table 6: Total annual added value concerning European Union vessel activity (in million FCFA)

	Total added value	Of which direct AV	Salaries	State	% / total
Landing incidence	5 086.55	1 832	1 938.15	1 912.32	48.6
Senegalese fishermen employment	309	309	266	44	3.0
Observer employment	288	288	257	31	2.8
Stopover incidence	4 776	3151	3 335	692	45.6
Total	10 459.55	5 580	5 796.15	2 679.32	100

2.2.2.3 Impact of fishery agreement on non-market sector

Compensation revenue amounts to 32 billion FCFA, on average 8 billion FCFA per year, 50% of which goes towards strengthening the fishery industry. Trawler licence taxes paid by ship owners should be added: 689 million FCFA and tuna tax: 5.5 million FCFA.

Table 7: Comparison of average annual public budget during the European Fishing Agreement (APC) period (in million FCFA)

National budget		Aid and cooperation		Fishing agreement	
Functioning	309	Japan	2 423	Compensation	8 000
B.C.I.	3 053	France	1 726	Trawler taxes	689
CEPIA	634	EU	491	Tuna trawler taxes	5.5
Total	3 997	Total	4 640	Total	8 694.5

In total the non-market sector gained an annual sum of 8 694.5 million FCFA, which can be compared to public sectorial budgets (*see* Tables 7 and 9) from which the distribution in the sector can be estimated (*see* Tables 8 and 9).

Table 8: Public expenditure financed by fishing agreements (in million FCFA)

Type of activity	1998	1999	2000	2001	Annual average	%/ total
Aval	2 518	1 250	1 380	1 804	1 738	45 %
Research	250	250	250	200	237	6 %
Training / accessibility	985	1 100	20	10	529	14 %
Institutional support	246	1 150	2 000	1 103	1 125	30 %
Financing		250	250	250	188	5 %
TOTAL	4 000	4 000	3 900	3 367	3 817	100 %

Source: MP/CEP

The global incidence on market and non-market sectors of the fishing agreements is estimated at 19.2 billion FCFA, representing 9.6% of national added value.

Table 9: Overall synthesis of fishing agreement incidences on commercial and non-commercial (in billion FCFA)

(in billion FCFA)	Average annual flow
Overall incidence on commercial sector	10.5
Overall incidence on non-commerciqlal sector	8.7
Total incidence of the Fishing Agreement (APC)	19.2
Overall added value on national fishery sector	199
Ratio of APC incidence / national added value	9.6%

2.2.2.4 Competition in foreign markets

There is competition from European products in export markets targeted by Senegal, as is the case of Japan for octopus, and the European market (French, Italian, and Greek) for demersal and pelagic species.

General conclusion

The main factors which have led to the Senegalese fishing crisis are: artisanal and industrial overcapacity fishery, targeting overexploited resources, inactive production capacity and low yield, as well as a decrease in productivity.

Nowadays artisanal fishery is no longer able to decently sustain its operators.

The only way out of this situation is to break with old attitudes and behaviour, in order to put sustainable development into action. There is undeniably a socio-political price to pay, which if ignored, will result in a dead end situation for the fishery sector, which in ten years time could lead to the sector's total collapse.

Access Agreements: South Pacific Forum Fisheries Agency

by

Ms Josie Tamate[1]

Introduction

This paper describes the experience of the members of the South Pacific Forum Fisheries Agency (FFA) with fishing access agreements in the last 20 years, and the various mechanisms they adopted to manage their tuna fishery resources. Also included in this paper is a brief description of the National Tuna Management and Development Plans and the Western and Central Pacific Tuna Convention that was adopted in late 2000.

The Forum Fisheries Agency

The Forum Fisheries Agency (FFA) was established in July 1979 under the South Pacific Forum Fisheries Agency Convention. The establishment was in response to the challenges faced by the Pacific Island countries to promote regional cooperation and coordination in respect of fisheries policies, following the adoption of the Law of the Sea Convention. Basically, the countries recognized their common interest in the conservation and optimum utilization of the living marine resources of the South Pacific region, particularly the highly migratory species (tuna), and would like to maximize the benefits derived for their people and the region as a whole.

The FFA consists of a Forum Fisheries Committee[2] (FFC) and a Secretariat. The Secretariat is located in Honiara, Solomon Islands with a staff ceiling of 52. Membership of the Agency is open to all members of the Pacific Forum and other states and territories in the region, on the recommendation of the Committee and with the approval of the Forum. Currently, there are 17 members[3] of the FFA; 16 independent states and one territory (see Figure 1).

The Secretariat is funded by the contributions from its members and supplemented by financial assistance from donor organizations. All the decisions are by consensus. In the event where a consensus is not reached, a two-thirds majority of the members that are present and voting, will be adopted. These decisions are normally with respect to the operations of the Secretariat, particularly the policy and administrative guidelines, and on the issues of common concern to the members. Under the Convention, the FFC is tasked "to promote intraregional coordination and cooperation" in the following areas:

(i) Harmonization of policies with respect to fisheries management
(ii) Cooperation in respect of relations with distant water fishing countries
(iii) Cooperation in surveillance and enforcement
(iv) Cooperation in respect of onshore fish processing
(v) Cooperation in marketing

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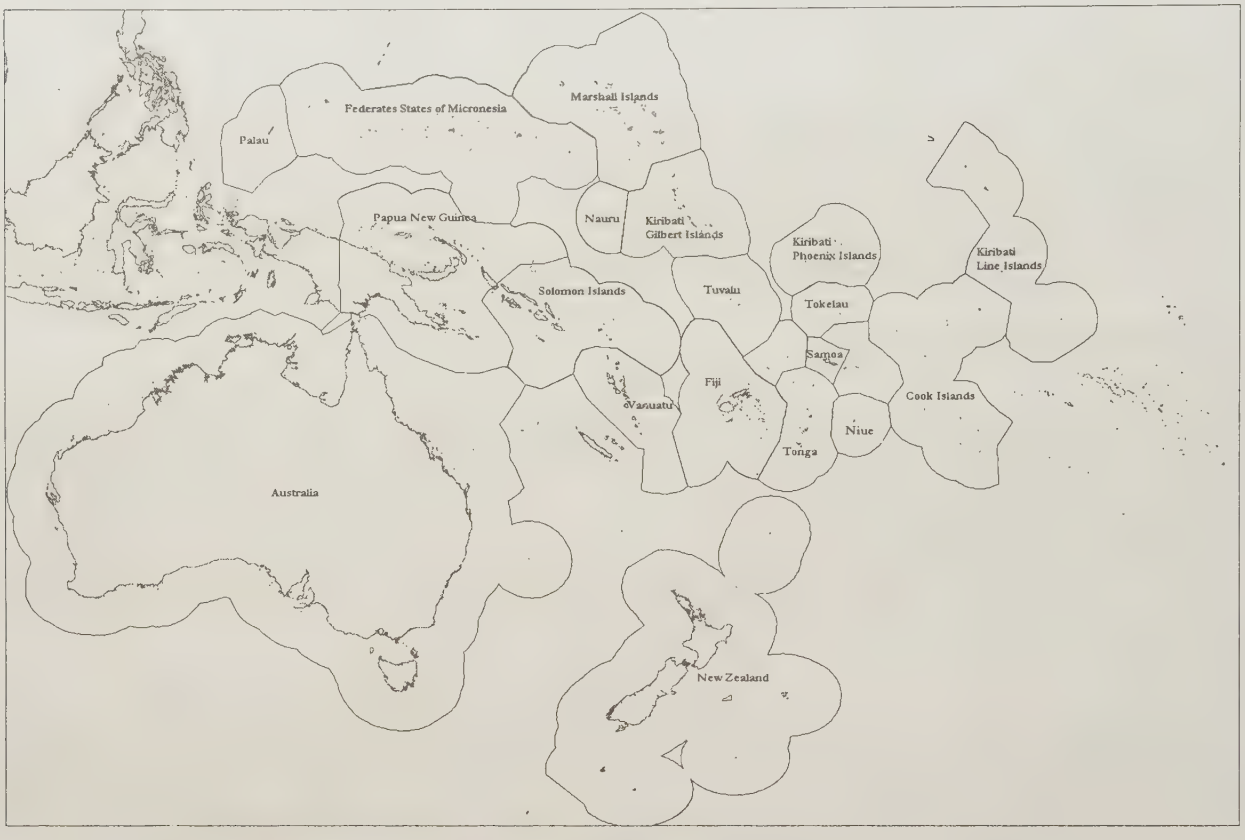
[1] Project Economist, Forum Fisheries Agency, Honiara, Solomon Islands
[2] Governing body of FFA.
[3] Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

(vi) Cooperation in respect of access to the 200-mile zones of other Parties

Currently, there are no provisions for disciplinary action if a member fails to comply with the regionally agreed decisions. There is however, a provision for withdrawal and this may be given through a written notice to the depositary. This withdrawal becomes effective a year after its receipt.

Figure 1: Map of FFA members and their Exclusive Economic Zones (EEZ)



Overview of the Western and Central Pacific tuna fishery

The tuna fishery in the western and central Pacific (WCP) is the largest, and one of the most productive in the world, yielding an average annual tuna catch of around 1.8 million tonnes over the period 1996-2000, and a monetary value of nearly US$2 billion. The majority of the catch is landed by the purse seine vessels of the four major foreign fishing fleets comprising Japan, Taiwan, Korea, and the United States of America (US). A fleet of domestic/locally based purse seine vessels in FFA members have also made a sizeable contribution in the recent years with catches increasing from less than 100 000 tonnes per annum to over 200 000 tonnes. As the fleet continues to grow, it is expected that its catch will rival the catch of the major foreign fishing fleets.

Preliminary tuna catch estimates for 2002 indicated a total of approximately 1 982 001 tonnes of yellowfin (*Thunnus albacares*), southern albacore (*Thunnus allalunga*), bigeye (*Thunnus obesus*) and skipjack (*Katsuwonus pelamis*)[4]. This is the second highest annual catch recorded since 1998's catch amounting to 2 037 644 tonnes.

[4] Williams, P. (2003). Overview of the Western and Central Pacific Ocean Tuna Fisheries 2002, SCTB16, Mooloolaba, Queensland, Australia.

The overriding importance to Pacific Island nations of the ocean in general, and the tuna resources in particular, is abundantly clear. For example, tuna represents one-third of all exports in the WCP and provides employment for an estimated 20-40 000 Pacific islanders[5]. For many Pacific Island countries, the tuna fishery represents the only significant source of income and basis for future economic development.

The Exclusive Economic Zones (EEZs) of more than 50 percent of FFA members lie in the particularly productive waters of the equatorial zone (10°N-10°S), where average tuna catches per unit of effort are relatively high[6]. Over the last decade, the 10°N-0°S band has accounted for approximately 90% of the total tuna catch of the WCP, and of this catch, approximately 70% was taken in the EEZs of FFA members and other coastal States[7].

Countries endowed with these more productive (in terms of tuna) zones have formed the PNA (Parties to the Nauru Agreement) group[8], which is a subset of FFA membership. This resource endowment provides the PNA group with considerable leverage in negotiations concerning access and management of the tuna resources. Access to the EEZs of PNA countries is essential for the operations of the distant water fishing nations' (DWFNs) fleets to be viable, particularly with respect to the purse seine fishery. Subsequently, the majority of access arrangements with distant water fishing nations DWFNs in the FFA region are made with PNA countries (see footnote [5]).

The countries situated further south and east of the WCP (Cook Islands, Fiji, Niue, Samoa, Tonga and Vanuatu) tend to have less productive fishing grounds and larger adjacent areas of high seas to the south. Accordingly, these countries have reduced leverage with DWFN fleets that fish in their waters and surrounding high seas[9].

The region has seen an increasing level of fishing activity over the past three decades, and associated responses in terms of management initiatives. Until recently, tuna fisheries management in the WCP has centered on the initiatives of the members of the FFA in their EEZs. These initiatives have been implemented at national, sub-regional and regional (FFA-wide) levels. While the FFA is an acknowledged world leader in terms of regional unity and cooperation on fisheries policy matters, its members have been long aware of the need for broader cooperation with DWFNs and other coastal States and territories, for the purpose of establishing arrangements to ensure effective management of the tuna resources throughout their range.

The experience of FFA members with access agreements

Through the Law of the Sea Convention enacted in the mid 1970s, FFA members were empowered with the ability to demand access fees from the foreign fishing nations operating in the EEZs. In these early days, FFA members received at least 4 percent of the value of the catch. This return has since increased to 5-6 percent in the last decade and FFA members continue to pursue an increase in the share of the monetary benefits from their tuna resources.

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[5] Gillett, R.; McCoy, M.; Rodwell, L. and Tamate, J. (2001). Tuna: A Key Economic Resource in the Pacific, Pacific Studies Series, Asian Development Bank.

[6] Tamate, J.; Richards, A.; Cartwright, I. and Aqorau, T. (2000). Recent Developments in the Western and Central Pacific Region: A paper prepared for the InfoFish Tuna 2000 Bangkok Conference, FFA Report #00/16, FFA, Honiara, Solomon Islands.

[7] Statistics supplied by the Secretariat of the Pacific Community (SPC).

[8] The PNA group has eight member countries: Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Papua New Guinea, Solomon Islands and Tuvalu.

[9] Op. cit.

Currently, there are five major DWFNs[10] operating in the FFA region and they hold a range of tuna fisheries access agreements with almost all of the FFA members. Generally, the provision for foreign fishing vessels to have access to the EEZs of the FFA members has been done through bilateral arrangements between the Government of the FFA member(s) and the Governments of the DWFNs[11], fishing associations or individual companies from the DWFNs.

There is only one multilateral arrangement and this is between the Government of the United States and the Governments of certain Pacific Island countries[12] and is widely referred to as the US Treaty. The arrangement was concluded in 1987 and entered in force in June 1988 for five years with a fee of US$18 million per year for 50 vessels. At the end of the five years, the arrangement was extended for a further five years. A further extension of 10 years entered in force in June 2003 with a fee of US$21 million a year for 40 vessels, following negotiations over a period of two years. Efforts to establish similar arrangements with Japan, Korea, Taiwan in the 1990s and with the European Union recently, have not been successful.

The Japanese fleet was the first distant water fishing fleet to sign a bilateral fishing access agreement in the FFA region. Furthermore, Japan is the only DWFN that holds a head agreement between the two governments (Japan and a FFA member) and subsidiary agreement with the Japanese Fisheries Associations. The majority of the subsidiary agreements are rolled over at the end of each period, following annual consultations between the two parties. During the consultations, the status of the fish stocks, reporting requirements, and access fees are the main topics of discussion.

With the exception of the Japanese agreements, the majority of the access agreements in the FFA region are between foreign commercial fishing companies and vessel owners and the FFA member government. These agreements are generally recognized as bilateral access agreements between FFA member governments and foreign fishing industry. Generally, the agreements are short term with one year being the most common period for the duration of any given agreement. At the end of each agreement period, the bilateral partners renegotiated the terms and conditions of the agreement. Like the Japanese bilateral consultations, the main items of discussion during these renegotiation sessions include the fleet's performance during the year, status of the reporting of catch and conditions, and the access fees for the next period.

Prior to the negotiation of fisheries access agreements, individual FFA member countries normally request the assistance of the FFA Secretariat in providing briefs. If and when required, the assistance of the Secretariat of the Pacific Community's Oceanic Fisheries Programme is also sought, concerning the status of tuna stocks and other relevant scientific information. These briefs contain information on the relevant fishing fleet's activities (including monitoring, control and surveillance issues), the market situation and analysis concerning potential access fees.

A number of factors are assessed as part of the decision-making process prior to the negotiation of access agreements in the region. They are as follows:

Historical catch and effort data: This is normally supplied by the vessel operators and is adjusted where necessary to take account of underreporting and/or misreporting. Data is

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[10] Japan, US, Taiwan, Korea and Philippines. China is also a major participant in the region, especially with respect to long-line vessels but the majority of these vessels are based locally in FFA members. China is one of the new entrants to the purse seine fishery with four vessels in its fleet.

[11] Japan and the US only.

[12] Comprised of FFA members.

also sourced from the Oceanic Fisheries Programme of the Secretariat of the Pacific Community[13].

Market prices of the targeted species (tuna species): Pricing data is drawn from independent sources such as INFOFISH and/or other published sources. This data is used to analyse the market situation and is used for the calculation of potential access fees.

Minimum rate of return of total value of landed catch: This is the target figure that the FFA member would seek as a proportion of the value of the landed catch on which the access fee is based. The minimum rate of return is usually set by government policy.

Minimum terms and conditions of access: This sets out the monitoring, control and surveillance and reporting requirements that are incorporated into the agreements. FFA members have agreed to a minimum standard for such requirements that are incorporated into all agreements.

National fisheries legislation and regulation: All agreements are governed by the relevant fisheries legislation in place in each licensing country. The agreements must also take account of any regional treaties that licensing country is a party to in relation to the licensing of foreign fishing vessels and hence, these need to be incorporated.

Historical compliance: An assessment of the status of compliance for a particular fishing fleet is provided. This would include the exchange of information with other FFA members regarding the status of compliance for such a fleet. For example, country A would seek information from country B concerning the operation of a particular fishing fleet to determine whether this fleet complies with the licensing terms and conditions set out by country B.

An important and often difficult issue discussed during the access agreement negotiation is the access fee. In most cases, the issuance of the agreement is dependent wholly on the value of the access fee. In the FFA region, the access fees are largely determined using the previous year's catch data as supplied by the DWFN, the market price for tuna and the set percentage rate of return. The standard access fee formulae is as follows:

Access = Average Price of Tuna **x** Average Catch per Vessel **x** Minimum Rate of Return

For many of the FFA members, access fees derived from the licensing of DWFNs' vessels for the privilege of fishing for tuna in the region represent significant financial contributions to government revenues, particularly the smaller countries that do not have an abundance of natural resources available to them. For example, in Marshall Islands access fees amounted to about 25 percent of government revenue, whilst Kiribati and the Federated State of Micronesia's revenue amounted to 45 percent and nearly 25 percent respectively. This revenue provides funding for the government to finance development projects. To date, it is estimated that access fees for foreign fishing activity in the region accrued by FFA members have amounted to approximately US$60 million annually (see footnote [4]). In addition to the access fees, some agreements include a training levy which is payable by the DWFN partner, the observer fees and insurance bonds for vessels.

Despite a long history of licensing foreign tuna fishing vessels, the balance of power when negotiating access with DWFNs has not typically favoured FFA members. The countries have, for some time, recognized the disparity between the fees that they negotiate and the reported value of the fishery, but have been hampered in negotiating increased returns by a number of constraints. These constraints limit the capacity of the FFA members, particularly island members, to achieve more benefits from their access agreements and they include

[13] A regional organization based in Noumea, New Caledonia.

institutional weaknesses, the economic and political power of the DWFNs, competition among Pacific Island countries for access, and data and surveillance shortfalls.

A range of approaches have been used for calculating and negotiating access fees typically targeted at recovering approximately between 5-6 percent of the value of the catch, and often associated with aid resources of various forms. The limited capacity of FFA members, particularly island members, to verify reported catches by surveillance mechanisms or by comparative analysis of landed catches against reported log sheets, makes the current calculation of fees theoretical difficult and also problematic to monitor. However, FFA members have taken several initiatives to strengthen their position in managing foreign fishing vessels, perhaps the most prominent being the Harmonized Minimum Terms and Conditions for access.

For the most part, FFA members have maintained an ethic of regional cohesiveness and unity on issues where there are clear collective benefits like the US Treaty and a number of sub-regional fisheries management arrangements. However, despite this, details concerning bilateral negotiations and agreements tend to be more opaque, especially with respect to access fees. To eliminate the opportunity for DWFNs to negotiate access fees inequitably amongst FFA members, there is a real need to promote transparent mechanisms for licensing across the region. While promoting good governance, transparency will also serve to reduce and deter the temptation to employ corrupt practices during negotiations.

Access fees and arrangements in FFA members

Access fees in FFA members are typically paid in lump sum at the beginning of the licensing period. The Japan agreements are an exception. They are based on fishing trips, and the access fee is 5% of the catch value. The fees are dependent on level of catch for a particular fleet in a FFA member's EEZ, the previous period's tuna price and the rate of return. The rate of return is typically 5% although some FFA members have succeeded in using 6 percent.

Typically, for purse seine vessels under bilateral agreements, the access fees paid by DWFNs' fleets to FFA members, particularly PNA countries, ranged from US$10 000 to over US$100 000 per year. Lower fees are paid in countries where the catch is relatively poor and high fees reflected the abundance of the tuna resources and good catch rates. Additional fees are paid directly to the FFA members when vessels undertake transhipment in designated ports[14]. Such fees include port charges, observer costs and other costs relating to the transhipping activity.

In recent years, some changes have been observed where a minimum fee is charged for access plus an additional one at the end of the licensing period based on the agreed percentage of the value of the catch. This method has also been applied when a fleet access a particular EEZ for the first time and does not have a catch history to determine the potential fee that the vessels could pay. For this method to be effective, the activities of the fishing vessels need to be monitored more vigorously to minimize opportunities for misreporting or underreporting.

For long-line vessels, fees ranged from US$5 000 to over US$20 000 per vessel per year, depending on the target fishery. That is, those targeting the frozen market pay lesser fees compared to those targeting the fresh market (typically the Japanese sashimi market) pay higher fees.

[14] Transhipment at sea is banned and vessels are required to transship in designated ports. This ban was effective in June 1993 and is reflected in the Harmonized Minimum Terms and Conditions.

Vessels that are based in FFA member tended to pay lower licence (access) fees compared to the distant water fishing fleet, though they are also liable to pay export taxes and other related charges such as port charges, income tax and business licence. Export taxes are typically charged at 5 percent. For some countries, fuel is provided at a duty/levy price however this is only available to vessels that meet the criteria as domestic vessels.

FFA members continue to explore alternative ways to extract rent from their tuna resources. The concentration has been on DWFNs fleets however with the increasing local fleet, the members are also looking at options to maximize the returns from utilising their tuna resources. Another project that aimed to increase the revenue from the tuna resources in the FFA region is being finalized and it is expected to commence in December 2003. This project would review the current licensing arrangement and alternative options such as auctioning, quotas, rights-based management and others will be explored. The results from this project is expected to be available in mid-2004 and endorsed for implementation in late 2004.

It should be noted that the approach taken by FFA members is not directly linked to resource rent. This is because it is difficult to measure as the majority of the vessels being licensed are distant water vessels. However, a regional project on "Maximizing the economic benefits to Pacific Island nations from management of migratory tuna stocks" is in progress and the resource rent will be measured. This project involves the development of a Western and Central Pacific Ocean bioeconomic tuna model to assist FFA members to increase the resource rent from the tuna resources in a sustainable manner. The model takes into account the biological and economic information under various scenarios and determines the potential resource rent. It is anticipated the project will be completed in 2005.

Mechanisms applied by FFA members to implement and monitor access agreements

The negotiation of bilateral fisheries access agreements with DWFNs is made easier by a number of regional initiatives and arrangements currently in place throughout the region. These arrangements include the Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery (Palau Arrangement) and the Harmonized Minimum Terms and Conditions (MTCs). Hence, the most difficult issues for the negotiations are the level of fees and the duration of the agreement. Although the outcomes of the negotiations differ from one country to the other, overall consistency is maintained through coordination between FFA members and the FFA Secretariat.

Given the limited resources available to monitor DWFNs' activities, and the vast area of the WCP region, FFA members have also established arrangements such as the Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific region (Niue Treaty), the FFA Member Country Vessel Monitoring System (FFA VMS), and the Regional Aerial Surveillance programme provided by French, Australian and New Zealand defence forces, to assist them in monitoring their EEZs. As the access fees of most agreements are dependent on the catch information for each fleet, these arrangements are equally important to minimize illegal fishing activities, misreporting and/or underreporting of catch information to FFA members.

Palau Arrangement

The Palau Arrangement was adopted in 1992 and entered into force in 1995 following the concerns regarding the status of the yellowfin tuna stock. The membership of the Arrangement is open to all members of the FFA however the principal membership is the PNA group where the purse seine fishery predominates.

The objective of the Palau Arrangement is to manage the purse seine fishery by allocating vessel numbers to the fishing fleets with the view of gradually reducing the allocation of

vessels under the bilateral arrangements and shift towards the domestic or locally based fleet. That is, as the number of vessels for each DWFN fleet reduces, this would stimulate an increase in access fees paid to FFA member countries. At the same time, it will encourage the foreign vessels, particularly the displaced vessels, to base locally in FFA members thus increasing the economic benefits.

In the last few years, the Palau Arrangement has been under pressure due to an increase in the number of vessels seeking licences from the existing participants and the participation of new entrants[15] such as China and the European Commission (EC). Consequently, the Arrangement is currently under review and the Parties to the Arrangement[16] are pursuing the use of a fishing days regime to allocate efforts in the fishery. When such a regime is implemented, the Parties would be in a position to decide how their allocation would be distributed among the fishing fleets operating in their zone. Potentially, the proposed regime would see an increase in access fees and perhaps a more effective arrangement would result where effort in the fishery will be in accordance with the limits established. The proposed regime increases the bargaining powers of the Parties to the Arrangement and hence, results in higher or fairer access fees. The proposed regime is anticipated to take effect in 2004.

Harmonized minimum terms and conditions for access

The Harmonized Minimum Terms and Conditions (MTCs) is deemed the most important arrangement in the region. These are developed, endorsed and adhered by FFA members to include in their respective bilateral fishing access agreements.

The most frequent used terms and conditions include the requirement of foreign fishing vessel to be registered and in "good standing" in the Regional Register of Vessels before a licence could be issued by a FFA member, the ban on transhipment at sea, the reporting requirements, and "good standing" in the FFA Member Country Vessel Monitoring System (FFA VMS) register. At the 53rd Annual Session of the Forum Fisheries Committee[17] in early May 2003, the Committee agreed that all vessels seeking licences in the FFA region must be in good standing in both the Regional Register of Vessels and the FFA VMS register before a licence could be issued.

The majority of the MTCs have been built into the fisheries legislation of the FFA member countries and form part of the licensing conditions for the foreign fishing vessels under bilateral arrangements. Inclusion of the MTCs in the domestic fisheries legislation removes the need to negotiate them during the development of a fishing access agreement between the two parties. The FFA Secretariat has assisted its members in updating their legislation to ensure that the MTCs are reflected in them.

FFA Vessel monitoring system (FFA VMS)

The FFA VMS enables FFA member countries to track the vessels operating in their respective EEZs. This system involves fitting a typed-approved device on the licensed vessel to be tracked by satellite. The vessel position information is transmitted to an earth station and then to the FFA Headquarters where a hubsite is located. From the hubsite, the information is sent to the individual FFA members. When downloaded, the FFA members are able to monitor the vessel activities in their own EEZs. Whilst this device may not pinpoint all

[15] The current Arrangement does not have a provision for new entrants thus the Arrangement was pressured as the Parties explored ways to accommodate the presence of new vessels in the fishery.
[16] Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau and Papua New Guinea.
[17] Governing body of the Forum Fisheries Agency.

illegal fishing activities by particular vessels, it assists the FFA members to deploy other monitoring resources such as patrol boats to investigate vessels suspected of illegal fishing.

Niue Treaty

The Niue Treaty provides an opportunity for FFA members that do not have the surveillance capacity or the means in terms of patrol boats to share the resources of those that have capacity. This is a cooperative arrangement where neighbouring countries enter a subsidiary agreement to share surveillance resources to monitor each other's waters.

National tuna management and development plans

In recent years, some FFA members have developed National Tuna Management and Development Plans, where guidelines and policies on foreign fishing vessels' access and the participation of the local people are set out including monitoring and surveillance procedures to ensure that the tuna fishery is sustainable. The guidelines for domestic industry development are also outlined, including the requirements to support the development aspirations of the respective member.

The National Tuna Management and Development plan is perceived to be a powerful tool for the FFA members as the rules and procedures are set out clearly to guide the development and management of the tuna fishery. As all the national stakeholders are consulted during the development of the plan, it represents all the views and concerns of the public, thus making it a holistic and complete plan that should cater for all the needs of stakeholders.

One of the key aspects highlighted in the National Tuna Management and Development Plan is the licensing framework for the foreign fishing fleets and the domestic fleet. This framework is important to minimize potential negative interaction between the two fleets in the EEZ. Preference is given to the domestic fleet and this is normally in line with the national policy on domestication of the fishing industry. Once endorsed, the licensing regime will be reflected in the fishing regulations and/or legislation.

Western and Central Pacific Tuna Convention (WCPTC)

The adoption of the Western and Central Pacific Tuna Convention (WCPTC) in September 2000 introduces a new element into the tuna fishery with the prospects of enhanced programs for tuna conservation, including real limits being imposed on the fishery and catch allocations being distributed amongst the Parties to the Convention. This new development appears to offer new opportunities for Pacific Island countries to generate greater benefits from their tuna resources as limits are likely to increase the value of access.

The WCPTC was negotiated over a period of six years between the major DWFNs and the coastal States in the region. There were approximately 26 participants during the negotiation process that developed the text of the Convention and FFA members comprised more than half of the total participants. The Convention will see DWFNs and coastal States jointly establish a fisheries management regime to ensure that the tuna fisheries remain sustainable across the entire range of the tuna stocks in the western and central Pacific.

Depending on the strength, unity and the continued cooperation of the FFA members in negotiating terms and conditions, the WCPTC may act both as an empowerment tool and as a threat for the FFA island members in terms of fisheries management[18]. It is empowering

[18] Clark, L. (2000). The Convention and National Fisheries Management: *A paper prepared for the workshop on the implementation of the Convention of the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean*, Forum Fisheries Agency, Honiara.

"because of the new opportunities it should create for the Pacific Island States to secure greater benefits from tuna resources" and it is threatening "because of the opportunities it might create for some large fishing States to take away from Pacific Island States a measure of control that Pacific Island States now exercise over tuna resources"[19]. Hence, FFA members need to ensure that all efforts are made to protect and promote the interests of its membership at the Commission level and that the mechanisms developed do not take away the strength of the membership currently enjoyed but instead form a platform to dictate how certain issues, such as catch allocation and limits, should be applied.

It is envisaged that the Convention will enter into force in the second half of 2004. A number of preparatory conferences have taken place in order to prepare for the operation of the WCPO[20] Tuna Commission to operate effectively and according to the needs of its membership.

Conclusion

Over the years, there has been a general improvement in all areas concerning fishing access agreements between the FFA members and the DWFNs. The FFA members are now more aware and well informed on issues concerning their fisheries compared to the period prior to the declaration of the 200 nautical miles EEZs under the Law of the Sea Convention.

The fisheries access agreements in the FFA members have been developed under a framework of management measures such as the MTCs, and are designed to guarantee the sustainability of the tuna fishery in the western and central Pacific. In turn, this guarantees a flow of revenue to FFA members on a sustainable basis.

The financial benefits accrued from the fishing access agreements make a substantial contribution to the economies of most FFA members. However, in general, they have not made a substantial contribution to the development of the domestic industry.

The relationship between the DWFNs and the FFA members has improved over the last decade and it is envisaged that this will be further improved particularly with respect to the management of the tuna fishery in the western and central Pacific and as the Tuna Commission further develops mechanisms to manage tuna stocks over their entire range.

It is in the interest of all parties that the resource is managed effectively. From the FFA members' perspective, they will continue to receive access fees and other spin-off benefits from the access agreements. However, to ensure that efforts of FFA members to extract fairer or high returns from their tuna resources are maximized, and the efforts of the DWFNs to minimize their costs are restricted, there is a need for greater transparency between the FFA members in relation to access agreements. This remains the greatest challenge faced by FFA members as national interests always takes precedence and it is an issue that they must address to maintain regional cooperation and unity.

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[19] Op. cit.
[20] Western and central Pacific Ocean.

Fiscal reforms for Papua New Guinea fisheries

by

Jonathan Manieva[1]

Introduction

This paper describes the experiences of the fisheries sector and the Papua New Guinea (PNG) context of the fisheries sector reform and the various mechanisms it has adopted to manage its fiscal regimes. A brief description of the institutional frameworks enhancing the adoption of the fiscal regime reforms is provided.

PNG fisheries overview

Papua New Guinea is located in the Central Western Pacific. Its has an extensive and valuable fisheries sector. The largest fishery in PNG is the tuna fishery. The other significant sectors are shrimp, bèche-de-mer, lobster, trochus (shell) and reef fish. There are also potential for inland river fisheries and aquaculture.

The PNG fisheries zone (Exclusive Economic Zone – EEZ) covers about 2.4 million km^2 in the South Pacific. The fisheries zone includes an extended reef system, numerous islands and an extensive coastline. Although we lack large areas of continental shelf, our coastal waters and reefs are moderately productive. At present the resources located there are harvested in most cases to provide means of subsistence as about 40 percent of the country's population live along the coastal maritime areas.

PNG also has significant distribution of riverine and inland waters which offers potential for development of commercial and artisanal aquaculture on a large scale. Should this potential be realized this would provide a means of protein substitution and income generation for another significant mass of population living within and along these riverine and well watered landscape.

The vast area provides huge opportunities in terms of resources but also present an enormous challenge in terms of monitoring, control and surveillance (MCS).

The total sustainable fisheries potential in Papua New Guinea waters is estimated to be close to 500 000 tonnes of unprocessed marine products valued at 2 billion kina (US$600 million), and exclusive of aquaculture. However the total market value of PNG catch is estimated at only US$100-200 million due to information on the true value of artisanal fisheries being difficult to obtain. For this reason, cyclical factors and commodity price movements, especially in tuna, cause huge value swings from year to year. There is significant potential to increase the economic value and returns of these fisheries through better management and development programmes.

Bulk of the offshore fishery for deep water species (tuna and like species), is harvested by commercial operators using fishing vessels and gears and is processed either onshore

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and/or exported to overseas markets. The major part of inland and marine fisheries products, which represent roughly 70 percent of the total harvesting, is considered to be done at subsistence and artisanal levels.

Country Case Study

Development aspirations

The Government of PNG has embarked upon a number of initiatives to facilitate the development of an integrated tuna industry in the country. Because of the current economic difficulties it actually faces, the Government has gone its way to promote this industry as a new economic emerging sector to gradually take on the responsibility and ensure the same revenue that is currently being provided through the Mining and Petroleum sector. But, as a result of the decline of the latter within the Primary Industries, the fishing sector is gradually being developed with a view to provide employment, generate economic spin-off benefits and foreign exchange. The Government saw in fisheries a renewable resource and an opportunity for economic and social development of PNG for present and future generations.

This commitment to develop a domestic industry is pursued, given the potential contribution in employment generation, taxes, export and foreign exchange, technology transfer, skill development and significant spin-off benefits for the country's population – five million people.

The post independence domestic fisheries objectives were to identify, quantify and develop the fisheries resources so as to provide direct revenue earnings for the State as well as to provide cash income opportunities for the people, especially in the rural sector.

The Government had then invested a lot of public resources directly into developing coastal or small-scale fisheries. This provided income opportunities as a public service. The more industrial commercial fisheries such as prawn and tuna were developed with the objective of raising government revenue. These approaches were sometimes at variance with practical approach of the objectives of the government policy.

The Government directive on maximizing revenue targets for the State is still encouraged and continues to be a burden and is in direct contrast with the development objectives of the domestic commercial fishery sector. Furthermore, the Government continues to have the duty of providing income earning opportunities from fisheries resources exploitation.

After two decades and investments (millions of kinas) in the fishery sector, there is little progress to date. In some sections of the sector there was in fact regression in terms of development. There was a domestic pole and line fishery based in the north-eastern islands (Rabaul and Kavieng) in the 1970s however it came to its end in the 1980s. This is an example of private sector fighting to survive under the pressure of Government's fiscal policy. The private sector could not profitably run coastal small-scale fishing ventures because of the unfair competition from Government-run coastal fisheries stations. These stations were so heavily subsidized that they found themselves unable to proceed on their own when the Government decided, in the early 1990s, to privatize their operations.

The interest for an integrated industry was that government would develop infrastructure and provide a favourable environment for the private sector to achieve the policy for developing the fishery sector. A contended private sector would be more responsive to assist the government with its need to develop the fishery sector thus providing employment and income opportunities for its people. Consequently the Government would in turn earn revenue through income and company taxes along with duty and excise taxes.

Institution reform

In response to these continuing failures, the Government, in the last decade, launched the process of restructuring and reforming the fishery sector particularly in the areas of administration and resource management policies. Under this process, the Government initially moved the fisheries functions from the Department of Primary Industry (DPI) to the newly created Department of Fisheries and Marines Resources (DFMR), provided with its own Ministry. Consequently, the recognition of fisheries as a major renewable resource capable of providing sustainable economic return to the country enabled the adoption of the Fisheries Act (1994) thus establishing the National Fisheries Authority as a semi-corporatized government agency.

The fiscal regime transformation to accompany this institutional change was the granting of the financial autonomy at the institutional level.

This empowered NFA to maintain and finance its operations from internally raised revenue, the greatest part of which deriving from access fees from DWFNs. Others sources include mandatory licence fees, assistance from donor agencies and penalties arising from successful prosecutions against illegalities.

The surplus of profit declared is paid as dividends to the national treasury. These funds are merged into the national budget expenditures and commitments such as public goods and services outside the fisheries sector. However the financial autonomy that has been granted to the National Fisheries Authority (NFA) allows it to dispose of its internal budget and steady financial resources to carry out its functions and designated projects. Under the former structure, operational budget and financial plans were subject to the approval of the Ministry of Finance during the annual national government budget allocation process.

The NFA acting as an implementing agency, a balance had to be found with the principal objectives, that is to say it had to optimize revenue-raising measures and also assist the development of the fishery sector. The balance was slightly modified and instead of concentrating on mobilization of returns for the government, the emphasis was placed on the necessity to develop the fisheries sector in order to provide maximum and sustainable returns to the economy from the fisheries resources.

Trade implications

The shift in focus was also imposed with the major changes in the global trade liberation. World Trade Organization (WTO) provided a unique framework of reciprocal obligations and benefits, in both developing and developed countries. This framework implementation favours export opportunities based on comparative advantages confered to PNG's as a member of WTO and its acceptance for improved and strengthened rules based system.

PNG now realized that it must be a participant in the global trading system and needs to integrate its policies into its multilateral trading systems.

Renewable natural resources like fishery and forestry, under these frameworks, offer great potential for trade, and Papua New Guinea, also believes that the manufacturing sector (especially downstream processing) is the crucial element for the sustainable growth of the economy in the long run.

There is favorable investment climate generated by the zero-rated taxes on fisheries products exports under the sectoral fiscal arrangement adopted by Government as prescribed by WTO and APEC arrangements. The trade opportunities under the *Melanesian*

Spearhead Group Trade arrangement only provide impetus to enable onshore processing and exportation.

Domestication policy

Noting the desire to advance in this sector the Government recognized that an integrated fisheries sector needs to be developed consisting of fishing (domestic and foreign), processing (preservation, cutting, fresh/chilled products and added value) and coastal inshore fisheries development. It is noted that the PNG Government desire to stimulate the development of this sector is not new but has already been formulated decades ago.

The domestication policy of 1995 requires and encourages the full participation of PNG citizens and PNG-based companies to participate in the industry. The constraints perceived by the Government are still the same but the number of opportunities is high for both national and provincial governments and local authorities to appreciate the value and benefits that the local communities can generate from the development of an integrated fishing industry.

Access fee and licence fee

Longline fishery

After years of foreign commercial fishing, under this policy PNG is attempting to promote direct participation of local companies and individuals in the tuna fishery. With this policy, mid-1995, the Government ceased issuing licences to foreign longliners, by, and introduced a "domestication" policy on longline fishery. This fishery, involving smaller, lower value vessels, is fully domesticated, with only citizen- or nationally-owned vessels licensed in the fishery, in order to promote a domestic tuna longline industry.

These vessels target the fresh and chilled tuna product markets. Access to PNG's rich waters by foreign longliners is routinely sought, but denied in favour of the development of the emerging local industry. The current longline catch is around 5 000 tonnes (tuna and shark, whole weight) with exports mainly to Japan and Australia now valued at close to K40 million. Under the management plan, one hundred licences are available with a little over 50 percent currently issued. They pay a domestic level of licence fee, which is considered just to cover administration costs. However, this promising local fishery, which has grown steadily since the mid-1990s, may be at the crossroads due to increasing freight costs and limited cargo availability for this primarily export market (see Table 1).

Purse seine fishery

Generally, the provision for foreign purse seine vessels to have access to the PNG's EEZ are done through bilateral arrangements between governments, fishing associations, or individual companies from the fishing States.

There are currently five major Distant Water Fishing Nations (DWFNs) operating through enterprises and associations in the PNG's EEZ under bilateral fishing access agreements. The four DWFNs include Taiwan, Korea, Philippines and Chin. PNG is a party to one multilateral arrangement with the United States concluded in 1987, which continues to provide island member countries with significant benefits.

The important factor in the access agreement is the access fee. The access fees are largely determined using the previous year's catch and effort data as reported by the fishing partners to NFA. The market price negotiated is based on the INFOFISH quoted price, which now incorporates the yellowfin price component in fish price. The set minimum percentage rate of return is six percent and is non negotiable. The standard access fee formulae is as follows:

Access = Average price of tuna **x** Average catch per vessel **x** Minimum rate of return (6%)

Table 1: Licence fees

LENGTH	DOMESTIC	LOCALLY BASED FOREIGN	FOREIGN
	Kinas	Kinas	Kinas
<10M	100	500	1 000
10-15M	500	1 000	1 500
15-20M	1 000	1 500	2 000
20-25M	1 500	2 000	2 500
25-30M	2 000	2 500	3 000
30-40M	2 500	3 000	3 500
40-50M	3 000	3 500	4 000
>50M	3 500	4 000	4 500

In addition to the access fees, the agreements include a training levy, observer levy, project development levy and insurance bond for the vessels which is payable by the DWFN partner. This is over the required statutory licence fees and charges.

Current access is valued at over K40 million (US$10 million) per year, including fees, levies, expenditure during port calls etc.

The Regionally capped limit under the Palau Arrangement on the number of seiners to fish within PNA Group provides an attraction to new vessels to consider operating as domestic based operators. This attraction, combined with the national fiscal incentive under Pioneer Industries had a direct impact on the current shore-based operators. Under this national fiscal package, the operator benefited from a tax exemption on importation of equipment and materials for construction or generally a tax exemption for a period of 10 years.

The Pioneer Industry Act is now revoked. The current legislation with the objective to provide the incentives as the former is the Free Trade Zone Act. This legislation foresees the concession of exemptions to investors interested to invest in declared Free Trade Zones.

The sectoral domestication policy increasingly promotes linking locally based foreign purse seine to invest on onshore activities, preferably in the form of value-added processing of the catch for export. Towards the end of the 1990s, PNG saw an increasing number of vessels fishing as PNG-based purse seine vessels and as such outside any form of access agreement

Locally based foreign numbers

The contribution of a local fishing industry is quite significant to certain provinces' and PNG's economy where a value-added processor (cannery) is established, contributing in excess of K38 million per annum compared to total foreign vessels of over K35 million annually in access fee from Distant Waters Fishing Nations. Some of these vessels are linked to an onshore processor like a tuna cannery, a loin plant or other similar industries.

At present PNG has an established tuna cannery now processing 100tonnes/day, which is located in Madang. This cannery provides 3 000 jobs and exports US$10 million to US$15 million a year. This operation had made another commitment for the construction of a second larger plant (200 tonnes/day), in conjunction with a larger cold storage (2 000 tonnes) and an existing ice plant. It is anticipated that the Madang Province is reaping over K40 million of economic spin-off annually from the tuna fishing and canning operation situated there.

The eleven purse seiner vessels (average 600 GRT) associated to this cannery only pay the domestic licence fee of K4000 (US$1 000) inclusive of other statutory fees per vessel. This category also enables the PNG-based seiners to operate in the archipelagic waters as an added incentive.

The other cannery in Lae processes imported mackerel. Its establishment was under the then *Pioneer Industry Status* concessions regime.

Partial access

This category of access fishing licences are granted on a concessionary basis in conjunction with onshore investments. This is a shift from the initial full discounting for domestic licence fee on the locally based foreign vessels. At present the rate discounted is 40 percent of full foreign access fee. These allow foreign purse seiners to operate in national waters to supply tuna to their onshore plants.

A near completion tuna loin plant which should become operative in December 2003 is established under this category. A further proposal for the establishment of another two loining plants has been made. These have the potential for 3 000 employment opportunities for citizens living in the surrounding areas situated and will offer further additional opportunities for spin-off creation. These proposed shore facilities are linked with access fishing vessel operators and will afford the similar level of fee structure.

With access now linked to onshore development, more such developments can be expected. Even if all of these were to become operative, it is considered that they would process only about half of the tuna which can be captured in PNG waters on a sustainable basis. A considerable portion of the tuna processed would come from the locally based foreign vessel from outside PNG waters under the FSM Arrangement.

The FSM Arrangement is also another attraction that has appealed to our domestication policy for vessel operators to consider basing locally.

The ever changing global environment with the new initiatives of establishing the Central and Western Pacific Commission will be used as spring brook for developing a fully fledge tuna industry by companies that have been traditionally fishing in the PNG waters as distant water fishing vessels.

Licence fees and statutory charges

Besides the access fee and domestic fishing licence fees, the NFA also imposes other statutory charges. These includes application fees, buyers licence fees, storage licence fees, export licence fees, factory licence fees, aquaculture fee, support craft fee, support aircraft fee, foreign fishermen fee, national crew fee.

Resource rents

As mentioned earlier, since the early 1980s, tuna was caught by foreign vessels fishing in PNG waters under access agreements, but with an increasing portion (20-30 percent) of the catch (since the mid-1990s) now being taken by domestic and locally-based foreign vessels, much of this domestic catch is now processed onshore. The access agreements with the US, Taiwan, China, Korea and the Philippines continue, as sufficient local capacity to harvest the sustainable catch level is not yet available, and the catch would be taken elsewhere in any case.

Table 2: Other onshore licences

Aquaculture	K500/year or 100 per hectare – whichever is lesser
Fish buyers	K100
Fish storage/Fish factory	K500 (fish storage combined with fish factory licence)
Fish export	K1 000 per enterprise
Other activities that may be licensed	K1 000
Duplicate licence	K100
Licence application fee	K100

Review of access/licence fee

The gradual growth in the domestic vessels will mean a corresponding decline in the quota for foreign vessels. The access and licence fee system is been reviewed also in light of the recognition that increasing portion of the catch will be being taken by domestic vessels and locally-based foreign vessels.

Intention is to ensure that fee levels for locally-based foreign purse seiners are not automatically set at licence fee levels only as is the case at present so that the future revenue base is protected. Further the consideration is to allow for the need to have some element of cost recovery in domestic licence fees.

Private sector driven

The private sector is small but gradually growing. The rapid growth took place in the last three to four years and has been substantially attributed to the government's monetary and fiscal reforms.

Development cannot progress and be sustained without an environment that is conducive and beneficially healthy to the private sector, which will be the principal actor in the fishery sector development.

Government through NFA has embarked on initiatives with the private sector to facilitate the development of the fisheries sector as the measure of enhancing a conducive private sector growth environment. Some of these initiatives will be encouraged through the NFA Domestication of the Tuna industry policy and overall development of the sector. The following achievements are proposed:

1. Construction of fish chillers at the major airports of the country.
2. Introduction of pilot airfreight shipments of fresh and chilled tuna and fisheries exports.

3. ADB coastal fisheries management and development.
4. EU rural coastal fisheries management and development

These direct investments into supporting infrastructure and donor assistance aim to have a greater intervention within the Government priority areas.

Provincial fisheries regimes

Under the Organic Law on Provincial and Local Level Government reform in 1995 all provincial levels of fisheries structure were abolished and provincial fisheries now comes under Agriculture and Livestock Department as division of fisheries or some administrative section dealing with fisheries matters. The decentralization empowered local government to establish revenue-generating mechanisms including the fisheries sector where their jurisdiction extends. These mainly cover inshore fisheries (within 3 miles in maritime zones) and inland fisheries. The objective is to establish provincial licensing regimes for those fisheries under their jurisdiction.

However, these intentions have not yet been fully explored and initiated although discussion on this objective has been in progress. The main reason has been the provincial fisheries offices' inability and incapacity to establish plans and policies for administration and implementation.

NFAs recognition of the obstacle has lead to the initiation of an operational framework under a Memorandum of Understanding with the maritime province. This has begun initially with selected Maritime Provinces to receive NFA budget assistance in areas of service delivery and maintenance of assets and locally-based fisheries management in the effort to participate in the management decision-making and policies development at the provincial level. What's happening now is that all onshore facilities licences and fish buyers' licences are collected by the NFA.

The way forward

PNG is abundantly endowed with natural resources including fisheries resources, however, poverty continues to affect a large proportion of PNG's population. The proceeds of natural resource exploitation have not led to that responding level of onshore investment, development and job creation. Income is unequally distributed. Poverty is concentrated in rural areas where the majority of the population dwell.

The Government aims to provide for the majority.

Fiscal reforms for fisheries in India
A case study[1]

by

Yugraj Singh Yadava[2]

1. Introduction

The fisheries sector occupies a very important place in the socio-economic development of India. The sector has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food. At the same time it is an instrument of livelihood for a large section of economically backward population of the country. More than 6.0 million fishermen and fish farmers in the country depend on fisheries and aquaculture for their livelihood. The fisheries sector has also been one of the major contributors of foreign exchange earnings through export.

The main objectives of fisheries and aquaculture development programmes of the Government of India during the Tenth Five-Year Plan (2002-2007) have been towards optimization of production and productivity, augmentation of export of marine products, generation of employment and welfare of fisherfolk communities and their socio-economic status. The detailed objectives are as follows:

- Enhancing the production of fish and the productivity of fishermen, fisherwomen, fish farmers and the fishing industry.
- Generating employment and higher income in fisheries sector.
- Improving the socio-economic conditions of traditional fisherfolk and fish farmers.
- Augmenting the export of marine, brackish and freshwater fin and shell-fishes and other aquatic species.
- Increasing the per capita availability and consumption of fish to about 11 kg per annum.
- Adopting an integrated approach to marine and inland fisheries and aquaculture taking into account the needs for responsible and sustainable fisheries and aquaculture, and
- Conservation of aquatic resources and genetic diversity.

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[1] Paper presented at the Workshop on "Fiscal Reforms – To Promote Growth, Poverty Eradication and Sustainable Management" held at FAO, Rome on 13-15 October 2003.
The views contained in this paper are those of the author and not of the organization to which he is currently affiliated.

[2] Director, Bay of Bengal Programme Inter-Governmental Organization

2. Overview of the fisheries sector

After the declaration of the Exclusive Economic Zone (EEZ) in 1977, the area available to India is 2.02 million km^2, comprising 0.86 million km^2 on the west coast, 0.56 million km^2 on the east coast and 0.60 million km^2 around the Andaman and Nicobar Islands. With the absolute right on the EEZ, India has also acquired the responsibility to conserve, protect, develop and optimally exploit the marine living resources up to 200 nautical miles of the coastline.

The harvestable potential of marine fishery resource in the EEZ has been estimated at about 3 921 million tonnes[3] (Table 1). An estimation of the depth-wise potential shows that about 58 percent of the resources are available in 0-50 metre depth, 35 percent in 50-200 metre depth and 7 percent in depths beyond 200 metre. The length of the coastline, continental shelf area, landing centres and fishing villages are shown in Table 2.The marine fishing fleet comprises about 0.226 million traditional craft (including about 44 578 motorized traditional craft). In addition there are 53 684 mechanized craft and about 80 large fishing vessels of 21 metre overall length (OAL) and more (Table 3). As seen by the number of traditional craft and small-mechanized vessels, the major fishing activities are still concentrated in the areas within 0 to 70 – 80 metre depth zone. Trawling by larger vessels is confined to the northeast coast (Bay of Bengal). As compared to the west coast, concentration of traditional craft (Including motorized) is more on the east coast (about 57 percent of the total). In the case of mechanized vessels, the trend is reverse. The scale of mechanization is also reflected in the total fish landings of the two coasts.

Fish production and trend

Total fish production in the country increased from 0.752 million tonnes in 1950-1951 to 6.186 million tonnes during 2002-2003 of which 2 980 million tonnes were from the marine sector and the remaining from inland fisheries. The average annual growth rate in fish production during the period 1990-1991 to 2002-2003 was 4.45 percent. During 2002-2003, the marine and inland sectors recorded a growth of 5.07 percent and 2.46 percent respectively (Table 4).

The growth in marine fish production over the recent years has been rather slow (an average of 2.20 percent during the period 1991-1992 to 2002-2003) as compared to the inland fisheries (average of 6.55 percent during the corresponding period) (Table 4). Penaeid shrimps, which dominate the export front, are at their optimum exploitation levels, whereas tuna and cephalopods are the two least exploited fisheries owning to limited operational range of the majority of the present fishing fleets. Several other species in the continental shelf are exploited only up to 50 m depth. An overview of Plan-wise (1950-1951 to 1997-2002) development and thrust areas is given in Annex.

3. Institutional set up and exploitation of fisheries

Entry 57 of List 1 of Seventh Schedule of the Constitution specifies Fishing and Fisheries beyond Territorial Waters as Union Subject, whereas Entry 21 of List II speaks of Fisheries as a State Subject. Reading both the Entries together, it follows that control and regulation of fishing and fisheries within territorial waters is the exclusive province of the State, whereas beyond the territorial waters, it is the exclusive domain of the Union. The Ministry of Agriculture, Government of India as per its allocated business helps the coastal States and Union Territories (UTs) in developing the fisheries within the territorial waters, besides attending to the requirements of the sector in the EEZ. Therefore, management of fishery

[3] The potential has been revalidated to 3 934 million tonnes in year 2000.

resources in the country, including exploitation in the EEZ requires harmonization in terms of policy and legal framework supporting fisheries sector and also a close coordination between the Centre and the States.

Marine capture fisheries constitute a source of valuable food and employment, and a net contributor to the balance of payment. The marine fisheries production has progressively increased by nearly six times during the past 50 years. The major fish production comes from the coastal resources, which contribute on an average 50 percent of the total fish production (including freshwater fish production). In the 3 651 fishing villages situated along the 8 118 km coastline about 1 million are employed, full-time, in marine capture fisheries. However, there are clear signals, which suggest that the resources in the inshore waters are being fully exploited, and the scope for increasing the production from the present level is limited.

Overview of the key issues in marine fisheries

The most important characteristic of marine capture fisheries is that the resources are a common property, the access to which is free and open. The sustained increase in the demand for seafood and the commensurate rise in prices have increasingly encouraged the induction of more manpower and fishing vessels with improved catching efficiency into the traditional as well as the new fishing grounds over the years. The growth of the fleets shows that the artisanal fleet (including the motorized) increased by about 110 percent from the 1960s to the 1990s and the mechanized fleet by about 570 percent during the same period (CMFRI, 1997)[4]. Coastal fisheries in India remained in a pre-developed phase till 1962 (pre-mechanization period; with the annual average production during 1950-1962 being <0.8 million tonnes), a prolonged growth phase till 1988 (intensive mechanization phase; annual production during 1963-1988 being 0.8 to 1.8 million of tonnes); followed by the fully exploited coastal areas (annual production being 1.8 to 2.8 million tonnest/year). Fishing effort increased steadily throughout the three phases of development, more so in the fully exploited phase. Marine fishing activity in India is an example of uncontrolled fisheries in the initial phase and inefficiently managed fisheries in the subsequent phases.

Increase in fishing intensity

The active fishers' population increased from 234 478 in 1961-1962 to about one million in 1996-1997 (Devaraj *et. al.,* 1997)[5]. The increase in the number of active fishers' population implies less fishing area per fisher. The number of active fishers per unit area in the inshore fishing grounds extending to a depth of 50 m increased from 1.3/km in 1961-1962 to 4.4/ km in 1996-1997). In an open access system, crowding of fishers leads to competition and increased conflicts between them, resulting in an overall depletion of the resources.

After the progressive mechanization of the fishing fleets, the number of smaller mechanized craft of OAL 8 to 10 m are being gradually replaced by larger ones (OAL: 13 to 15 m), thereby considerably increasing the sea endurance, fish hold capacity and fishing efficiency of the vessels. Trawlers have become the mainstay of the fishing sector (50 percent of the total catches are from the trawlers).

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[4] CMFRI, (1997). Annual Report 1996-1997, Central Marine Fisheries Research Institute, Cochin, pp. 144.

[5] Devaraj, M.; Kurup, M.N.; Pillai, N.G.K.; Balan, K..; Vivekanandan E. & Sathiadhas, R. *(1997).* Status, prospectus and management of small pelagic fisheries in India. In Small Pelagic Resources and their Fisheries in the Asia-Pacific Region *(*eds Devaraj, M. and Martosubroto, P.*),* RAP Publication 1997, Vol 31, p. 91-198.

Inappropriate exploitation patterns

Marine fisheries operations remained essentially an inshore activity till about the mid-1980s. Though fishing subsequently extended to the offshore areas, only about 20 percent of the total landings were from the offshore areas. It is estimated that 80 percent of the total fishing effort is employed in the inshore area, which causes enormous fishing pressure on the coastal fish stocks. Increasing competition between different fishing fleets as to who should have access to coastal fisheries resources and thereby benefit directly from the use of these resources is leading to conflicts and confrontations. These conflicts are also being increasingly witnessed between fishermen of adjoining coastal States.

Deep-sea fishing

Despite the tremendous growth in India's marine fisheries during the past 50 years and the declaration of the EEZ in 1977, there has never been commercial deep-sea fishing worth mentioning. The Government of India chartered foreign vessels in the early 1980s and entered into joint venture arrangements with large industrial houses in the early 1990s for exploiting the deep-sea fisheries. The schemes were terminated a few years after commencement as the local fishers stiffly resisted them. Considering the annual potential of 3.9 million of tonnes (Table 1) and the present production of about 2.9 million of tonnes, which is largely from the coastal waters there is scope for increasing the annual production by 1.2 million of tonnes from the deep sea.

However, the fishable potential in unit area is considerably low in depths beyond 50 m (0.9 tonnes/km^2) compared to that in the inshore waters (12.2 tonnes/km^2). Also, the deep-sea fishing requires larger vessels (OAL > 17 m) with sophisticated fishing technologies involving high establishment and maintenance costs. It is estimated that 0.5 million of tonnes or about 40 percent of the unexploited stocks in the deep sea are the tunas, which undertake transoceanic migration. Realising the nature of distribution of the resources in the EEZ as well the high cost of exploiting them and the technology capability that is required, regional cooperation appears to be the most viable option for achieving the optimum potential benefits of the deep-sea.

Fisheries infrastructure

Infrastructure has been created for post-harvest facilities such as processing and marketing of fish and fish products. However, major efforts in this direction have been aimed at creation of landing and berthing facilities for fishing vessels in the major ports, minor ports and other places along the coastline. Plan programmes of the Ministry of Agriculture for infrastructure creation were initiated during the mid-1960s and since then six major fishery harbours (Table 5), 48 minor fishery harbours and 138 fish landing centres (FLCs) have been sanctioned (Table 6), of which six major, 30 minor and 130 FLCs have been set up so far.

Exports of marine products

There has been a significant increase, both in quantum and value of export of marine products, which crossed the 1 billion US $ mark in 1994-1995. Though shrimps account for about 28 percent in terms of volume and about 66 percent in terms of value, there has been diversification also and the country is now exporting frozen squid, cuttle fish/ fillets, etc. in large quantities. India now exports marine products to about 70 countries but major buyers are USA, Japan and the European Union (EU).

Due to the thrust on export of marine products, the post-harvest facilities in this sector have come up at a much faster pace and largely comprise freezing and canning plants. It is

estimated that there are about 378 freezing and 13 canning plants. About 52 processors have also set up Individual Quick Freezing Plants to export seafood in value-added form.

Structural changes in marine fisheries economy

Competition among fisherman for increasing catch continuously promotes structural changes in the coastal economy. Fishermen households along the coastal belt increased from about 0.35 million in 1980 to 0.5 million in 1997. Fishermen population in the coastal villages increased from 2 million in 1980 to 3 million in 1997 (Table 7). Average fishermen households per village declined from 146 to 137 and the active fishermen per village increased from 193 to 282 during 1980-1997. Similarly, when the total marine fish production increased from 1.5 million tonnes in 1980 to 2.3 million tonnes in 1997, the annual per capita production per active fishermen declined from 3 250 kg to 2 240 kg during the same period.

The manpower employed in India in active marine fishing (harvesting operation) alone is currently estimated at 1 025 million. The pre- and post-harvest operations in marine fisheries including the internal and external marketing provide employment to another 1.2 million people. On an average, a quantity of 5 kg marine fish produced, gives employment to about 2 persons, one in the harvesting and another in the post-harvest sector (Table 8).

The manpower employed in active fishing in the mechanized sector is estimated at 0.2 million people, which includes the 0.15 million fishermen engaged in the trawl fisheries alone and the remaining 0.05 million in gill-netters, dolnetters, purse seiners and others such *as sona* boats, and deep-sea fishing vessels. The motorized sector employs 0.17 million people in active fishing where 66 percent are engaged in the operation of ring-seines, mini-trawls and gillnets. The motorized dugout canoes, catamarans and plywood boats provide employment to about 58 000 persons in active fishing. The non-mechanized sector provides the maximum employment to 0.655 million people where 0.27 million people are engaged in catamarans, 0.2 million in plank-built boats and the rest in dugout canoes, *masula* boats and others (Tables 8 and 9).

Socio-economic status of fishermen

Fisheries is all pervading in the lives of more than 6.5 million fisherfolk (1992 census). It is one community which loves its vocation. Fishing villages all along the coastal waters in India are almost similar in their backwardness and underdevelopment. A study on the socio-economic profile of some traditional fishing villages (category I) and predominantly mechanized fishing villages (category II) show some disturbing trends. Housing is one of the most important yardsticks to measure the socio-economic status of any community. About 80 percent of the fisherfolk in traditional villages and 50 percent in mechanized fishing villages are living in huts. The overall literacy rate works out to 29 percent in category I and 33 percent in category II villages. With regard to the occupational pattern, owner operators are more (45 per cent) in category I villages and wage earners more (50 percent) in category II villages. People engaged in fishery related activities are comparatively more in category I villages. In category II villages 70 percent households are in debt and the average outstanding debt per indebted household works out to Rs 60 000 for category II villages as against Rs 12 000 for category I villages. About 55 percent of the credit requirements of fishermen in category I villages are supplied by moneylenders. In category II villages, banks advance a maximum of about 57 percent of the credit requirements. With regard to the annual household expenditure pattern, 80 percent household expenditure of fisherfolk families in category I villages and 67 percent in category II villages are on account of purchase of food items. In all fishing villages fishermen spent very meagre amount towards health care and education. Analysis of the ownership pattern of the means of production

revealed that about 40 percent of fisherfolk households in traditional fishing villages do not possess any fishing equipment.

Marine fisheries provide substantial employment to human resource both in the production and post-harvest sectors. The labour force employed in marine fishery sector has shown a steady increase over the past two decades. Although the total marine fish landings have increased, the catch per unit of operation and the per capita production of labour steadily declined over the years. In spite of the decline in per capita production, different types of fishing units are sustaining due to the increase in price levels of almost all the varieties of marine fish.

Per capita investment, production, earnings and wages

During (1997), there were about 0.18 million non-mechanized craft, 45 000 motorized craft, 54 000 mechanized boats and 180 large fishing vessels engaged in marine fishing in the Indian seas. Intensive mechanization in the marine sector has led to increase in production but in the process marginalized the traditional sector. Mechanized sector landed hardly 30 percent of the total catch in 1974, which rose to 40 percent in 1980, and to about 72 percent in 1996 (Sathiadhas, 1997 a, b)[6]. While the annual per capita production of active fishermen in the non-mechanized sector declined from 2 590 kg in 1980 to 420 kg in 1996-1997, it increased from 5 260 to 8 130 kg in the mechanized sector. The annual average per capita production of active fishermen in the motorized sector was 2 390 kg during 1996. Presently, about 59 percent of the production in the artisanal sector is contributed by motorized units, the non-mechanized units contributing only 9 percent. The annual average production of a mechanized unit works out to 33 tonnes, motorized unit 13 tonnes and non-mechanized unit 1.7 tonnes.

Role of women in post-harvest operations

Even though women are not involved in active fishing in marine fisheries, they contribute substantially to the pre- and post-harvest operations. About 25 percent of the labour force in the pre-harvest activities, 60 percent in the export marketing and 40 percent in the internal marketing is women. Altogether, about 0.5 million women are employed in pre- and post-harvest operations in the marine fisheries sector, out of the total work force of 1.2 million persons.

Marine fish marketing

The infrastructure for marine fish marketing in India is still principally oriented towards the export market. The Indian Institute of Management, Ahmedabad conducted studies on marine and inland fish marketing in India during mid-1980s. Inherently disorganized marketing structure, lack of adequate infrastructure, deterioration and waste of such highly perishable commodity during transportation, dominance of middlemen and sufferings of small fish farmers and fishers were the highlights of the studies.

The fishermen's share in the consumer rupee is the best index to measure the efficiency of the fish marketing system. Marketing studies at the all-India level indicate that the fishermen's share in the consumer's rupee ranges from 30 percent to 60 percent for different

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[6] Sathiadhas, R (1997 a). Marine Fisheries in Indian Economy. In: Advances and Priorities in Fishing Technology.

Sathiadhas, R. (1997 b). Socio-economic structural changes in the marine fisheries sector of India and Coastal Zone Management. Proc. Sec. Coast. Zone. Manag: 79-89.

species/ groups of marine fish and marketing cost, including transportation range from 6 percent to 13 percent of the consumer's rupee. The wholesalers receive 5 percent to 32 percent and the retailers from 14 percent to 47 percent of the consumer's rupee for different species/groups of marine fish. In certain production-cum-consuming areas, the role of the middlemen traders has put both fishermen and consumers to the greatest disadvantage. A new beginning is now being made by the fishermen to group themselves into associations, which will take up not only fishing, but also selling the catches directly to the consumer so as to benefit themselves and the consumers by gradual elimination of the middlemen traders.

In the domestic marketing system, marine fish sales used to be mostly confined to the coastal and adjoining regions in the past. Currently, about 50 percent of fish is consumed fresh in and around the producing centres, 43 per cent in the demand centres located up to a distance of 200 km from the coast and only 5 per cent goes to the centres located beyond 200 km. There is enormous scope for improving the distribution process through enhanced private investment in the preservation, processing and transportation sectors of the domestic marketing system under the liberalized economic policies. The quantity of about 30 percent of the total landings, which are processed after they become unsuitable for fresh consumption, suggests good scope for market development of value-added products for domestic consumption.

Funding and budgetary support to fisheries

The fact that fishery sector has been recognized as a thrust area within the agriculture sector can be gauged from the successive Plan outlays. From Rs 51.3[7] million in the First Five-Year Plan (1951-56), the total outlay has increased to Rs 20 697.8 million in the Ninth Plan (both Central and States/ UTs). The outlays earmarked for the fisheries sector during successive Plan Periods have not been commensurate with the higher growth rate of about 6 percent recorded by the sector. Tables 10-11 give a comparative account of the outlays earmarked for fisheries sector from the First Five-Year Plan to the Tenth Plan. The outlays include grants to the States/UTs as well.

4. Fisheries management systems

Increase in the marine fish production in India is largely due to: (i) the introduction of mechanized fishing vessels and synthetic gear materials and the development of infrastructure for preservation, processing and storage in the 1950s; (ii) expansion of trawl fleet and indigenous boat construction in the 1960s; (iii) introduction of purse seining, diversification of fishing, development of fishing harbours and expansion of export trade in the 1970s; (iv) motorization of traditional fishing craft, introduction of ring seines and increase in the number and efficiency of craft and gear in the 1980s; and (v) substantial growth in the number and efficiency of trawlers and motorized craft, and change in the export trade from resource-based to food-engineering-based industry in the 1990s. Thus, the marine fisheries sector, which began as a subsistence operation by employing exclusively traditional craft during the pre-independence days, has today attained the status of a capital-intensive industry.

Marine fisheries laws and regulations

For sustainable development of marine resources, the constitution was amended in 1976, and the Parliament enacted the Territorial Sea, Continental Shelf, EEZ and other Maritime Zones Act, 1976, establishing a 200 nautical mile EEZ from 15 January 1997. Besides, the

[7] 1 US$ = INR 45 approximately

Government has also enacted the following legislation for the judicious exploration, exploitation, conservation and management of marine living resources.

1. Marine Products Export Development Authority Act, 1972.
2. The Wild life Protection Act, 1972 and various central legislations on environmental protection.
3. Indian Coast Guard Act, 1978.
4. The Maritime Zones of India (Regulation of Fishing by Foreign Fishing Vessels) Act, 1981.

Under the enabling provisions of the Indian Fisheries Act, 1897, various States and UTs have introduced their fishery regulations for regulating inland fisheries. For regulation of fisheries in the territorial waters, all the coastal States and the UT of Lakshadweep have enacted their Marine Fishing regulation Act (MFRA). These Acts are based on a model bill provided by the Union Government in 1979.

Monitoring, control and surveillance

Monitoring, Control and Surveillance (MCS) problems in the country include the vast size of the EEZ (2.02 million km^2), the long coastline (8 118 km), larger fishing fleet of different categories, participation of foreign-flagged vessels[8] and regional jurisdictional demarcations. Coastal State and UT Governments undertake control of domestic vessels operating largely within the territorial waters. Central Government is responsible for issuing licences to deep-sea vessels and to foreign-flag vessels. Licences carry restrictions on fishing methods; types of gear, area, and depth and cod end mesh size. Other regulatory measures include closed seasons and closed areas.

To effectively manage the vast fisheries resource and also the fishing fleet, a mechanism for MCS needs to be in place. The MCS should also incorporate the requirements of a VMS, especially aimed at the fishing vessels above 20 metre OAL.

The MFRA enacted by the coastal State Governments and the Maritime Zones of India (Regulation of Foreign Fishing Vessels). Act, 1981 of the Government of India provides for prohibition of fishing vessels (the latter Act restricted to foreign fishing vessels) in the areas earmarked for the traditional and small-motorized fishing crafts. For monitoring the fishing activities to be carried out in different assigned fishing zones by respective fleets, 30 patrol boats are provided to the fisheries department of the maritime States. The Coast Guard undertakes surveillance beyond the territorial waters. The resources monitoring surveys conducted by the Fishery Survey of India (FSI), Mumbai are being linked with the management measures to be evolved and applied for sustainable development of marine fisheries. However, at present there is no law to regulate the Indian owned fishing vessels operating in waters beyond the territorial limits.

5. Fiscal reforms and policy trends in environmental management and sustainable development

The complexity of factors involved in the regulation of fisheries, domestic and international, is often underestimated. Fishing is still largely an activity to harvest wild stocks of highly ambulatory animals. These animals cannot be fenced in a limited area or with marked ownership. This makes fisheries of open water a “common property resource” with its related problems. Therefore, regulatory measures need to be blended with other environmental protection and fiscal measures such as: a) limited access, b) leasing and auctioning,

[8] Presently, about 15 foreign-flagged vessels are only operating under lease arrangements. The charter and joint venture arrangements have been phased out.

including resource rent c) closed seasons and closed areas, d) licensing of gear, e) gear restrictions, and f) other fiscal reforms.

Fisheries management vs. fisheries exploitation

The issues pertaining to marine fisheries in India are not unique to the country, but common to the most tropical developing countries and need to be addressed through proper policy support. Some of them directly aim at food security, environmental sustainability, economy and livelihood of the marginal fisherfolk. The State Governments as well as the Central Government through different Ministries, which unfortunately play varied roles, govern the fisheries sector in India. Therefore, the need for an integrated national policy on marine fisheries becomes immediately obvious, particularly in the present context of overexploitation in the shallow coastal waters, under utilization in the offshore/oceanic zone, sectoral conflicts, economic waste, under employment and protein food contribution to the nutritional basket of the country.

Recent trends in both artisanal and small-scale fisheries in the country have been disturbing and indicate the need for implementation of sound management programmes. In fact, such management for the coastal marine fisheries is long overdue. The catches and earnings of fisherfolk have been declining. Resource scarcity and the dearth of new income opportunities have combined to make life difficult for small-scale fisherfolk. In the trawl fishery, on the other hand, average sizes of species have been falling and the species composition is changing, indicating the need for a pragmatic approach and good management. To sustain this production and to ensure that the major fisheries do not suffer any irreparable damage, improved management measures, based on community participatory approach are needed without further loss of time.

Responsible fishing

The obvious need for sustaining marine fisheries production is to regularize the fishing effort, particularly in the inshore, traditional fishing grounds. At present, there is no effective licensing system to limit the entry of new or existing fishing vessels into the coastal fisheries of India. There is no licensing of the artisanal craft and consequently, the concept of responsible fishing is totally lacking. Licensing and responsible fishing could be extended to cover the entire fishing industry, including the artisanal sector to help monitor fishing effort and optimization of inputs. Implementation of these measures demands a stakeholder endorsed policy, complimentary rules and regulations and a strong political will.

Temporal and spatial fishing restrictions

Given the fisheries situation that exists in India, temporal restrictions, i.e. seasonal closure of fishing appears to be an option, which could be effectively implemented. At present, the maritime State Governments in the east and west coasts independently decide on the seasonal closure of fishing (also known as monsoon ban) on a year-to-year basis prior to or during the southwest monsoon for about 30 to 145 days in a year (Table 12). Efforts are on way to implement this ban during a uniform period, coast-wise, through inter-state discussions.

To prevent the conflicts between artisanal and mechanized fishing vessels in sharing the inshore waters, the maritime State Governments have banned the mechanized vessels from operating in the inshore areas (for a distance of 5 to 10 km from the shore - Table 13). However, the regulations relating to the demarcation of fishing areas have inherent weaknesses. First, there is no surveillance to monitor the areas of different types of craft and hence encroachment by the mechanized vessels in the areas demarcated for the artisanal craft continues for more than a decade after the promulgation of the Acts. Second,

demarcation of the fishing areas is meant for protection of the interest of the artisanal fishers. If the Acts were strictly implemented, the fishers of the mechanized craft would be at a disadvantage, as they would be denied the opportunity to exploit the richer fishing grounds in the inshore waters. It may, therefore, be necessary to reconsider the present regulations based on the feedback from various sectors so that all the stakeholders are benefited.

Management of open access in marine fisheries

The open access nature of marine fisheries is one of the major reasons for depletion, economic waste and conflict among user groups. Without adequate control over access these consequences will become increasingly sever and further impede the sustainable management of fishery and the resource. With an open access, no catch limits have been set on efforts or the catch. However, to optimize the fishing fleet size, a National-Level Review Committee was constituted by the Government of India in 1997 to study the size of the marine fishing fleet in India *vis-à-vis* the harvestable potential and give recommendations on the fishing efforts that need to be deployed. The Committee concluded, after discussions with experts and with coastal States and the UTs that the mechanized fishing fleet, in the size range of 8 to 15 m OAL, has attained optimum strength and no fresh entry should be allowed. However, 700 new-generation resource-specific vessels of about 18 m OAL, including trawlers and gillnetters-cum-longliners, could be added to the fleet to tap resources in the EEZ beyond 50 m depth zone. This step also vindicates the recommendation of the Committee on Deep-Sea Fishing set up by the Union Government in mid-1990s[9].

Licensing of fishing boats

At present, the respective coastal State/ UT Government licenses the mechanized fishing vessels alone. The system of licensing needs to be extended to motorized and non-motorized craft as well. Licensing will be helpful to maintain an inventory of all categories of fishing vessels. New vessel may be permitted to be acquired only as a replacement of a vessel of equal size and capacity. The priority of licensing should be shifted from a means of mere revenue earning to a system of regulating the number and type of fishing vessels. Licensing will also enable better implementation of sea safety norms in the small-scale fishing vessels.

Another management option that has been considered for this area is to encourage small trawlers to diversify into fishing activities that can be practiced further offshore, in order to reduce overcrowding in coastal waters and reduce the pressure on the fish stocks. However, few fishermen are equipped for such ventures, and there is a need to provide support to this category as also technical information on the availability of resources or the best fishing methods with which to target them.

Harnessing of offshore resource

Realizing the potential for increasing the production from the outer continental shelf, the Government of India took several initiatives. Permission was given under a policy programme, for acquisition of vessels on lease or through joint venture. But this programme went into a rough weather with all the fisheries associations protesting against the policy and objecting to the operation of deep-sea vessels in the Indian EEZ. Consequentially, the Government of India constituted a Committee (Murari Committee) to review the 1991 Deep-Sea Fishing Policy. This Committee recommended, among others, the cancellation of all the licences issued under the Policy. The Government considered the recommendation and finally scrapped the 1991 Policy.

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[9] The Murari Committee.

Sustainable exploitation of offshore resources in the EEZ will have to be reconsidered in terms of not only the resources available, but also in terms of infrastructure. To avoid overcapitalization and ensure a cautious growth of the infrastructure and investments, a rationalized approach will be essential in determining the number and size of fishing vessels, their resource-specific gear as well as technology to be made available either indigenously or through foreign collaborations. The development of deep-sea fishery industry is of concern to the entire marine fishery sector because it would have considerable impact on the management of near-shore fisheries, shore-based infrastructure utilization and post-harvest activities, both for domestic marketing and export. Similarly, up-gradation of the small-mechanized sector should be given high priority to facilitate their entry into the deep-sea sector.

In the absence of compliance by the fishermen to operate in the areas allotted to them, encroachment by the larger mechanized vessels in the areas demarcated for the artisanal craft continues. The Central Government has now proposed to introduce a vessel monitoring system (VMS), which is expected to resolve the problem. Similarly, the Central Government should also consider providing a fresh model bill to the States/UTs to enable them to revive their Marine Fishing Regulation Act (MFRA) on the basis of their present requirements and also global initiatives to which India is a signatory.

Code of Conduct for Responsible Fisheries and other global initiatives

A national-level Workshop organized by the Chennai-based Bay of Bengal Programme (BOBP) in September 2000 brought together for the first time senior fisheries administrators and scientists to discuss the modalities for implementation of the Code in India. The Action Plan, which emerged from the two-day Workshop, is placed at Table 14. The Government of India has also set up a permanent committee in the Ministry of Agriculture to monitor implementation of the provisions of the Code.

India needs to adopt global fishery and related conventions and agreements (e.g. Straddling Stocks Agreement, Compliance Agreement) to which it has been a signatory. In fact, being the largest maritime country in the region, India also needs to set the example. Because of the large marine fisheries resource available to the country, the straddling and migratory nature of many valuable stocks like tuna and emerging issues in sustainable management of the resources, it is also important to take the lead to set up and participate in regional fisheries bodies, which will help to widen the use of the national research and technical expertize in the region. The fishery policies have thus far kept it as an insular nation. This may have had good reason in earlier times, but it can be counter-productive in the future global scenario.

Fiscal reforms

The use of fiscal reforms in India has been restricted to rent from the processing sector, i.e. levy on exports of marine products; landing and berthing fee collected from mechanized fishing vessels in some of the fishing harbours and fish landing centres (FLCs) and rent through licensing of deep-sea fishing vessels through joint venture, charter and leasing arrangements.

While the levy on export continues, the rent through licensing has ceased after the government in 1997 rescinded the 1991 policy on deep-sea fishing. As regards the landing and berthing fee, there is no uniform pattern and the rent collected from most of the harbours and FLCs is very meager. Further, the non- payment of rent is very common and there is no mechanism in place to penalize the defaulter. As a result, very little rent accrues from the users of the landing and berthing facilities. Due to political compulsions, it is also becoming

difficult for the management bodies to rationalize the fee to enable its re-use for regular maintenance and upkeep of the harbours and the FLCs.

It is seen that fiscal instruments can be a useful management tool to restrain/optimize fishing effort as well a source of revenue to the government, which can be ploughed back to the fisheries sector to supplement the meagre share it often receives from the Plan allocations. To sustain the marine fisheries, the Government of India would have to introduce a set of fiscal reforms in the fisheries sector, which *inter alia* should include a system of limiting access and charging fee for the access.

6. Conclusion

The pace of economic development of India's coastal belt is not commensurate with other region and the overall socio-economic status of fishermen is comparatively lower than other backward sectors of our economy. Overcapitalization of the small-scale mechanized sector and marginalization of artisanal fishermen, low per capita earnings, lack of alternate and supplementary job opportunities, seasonal migration and absence of mobility of labour to other sectors and high rate of illiteracy and indebtedness are some of the major problems faced by the huge population depending on the fisheries sector. The multi-species, open access marine fishery further aggravates the problem and also creates conflicts among the fishermen over the area of operation of different categories of fishing vessels and in sharing of the benefits. A comprehensive long-term policy for fisheries development in terms of resource exploration and exploitation, conservation and regulation, leasing and application of rent on resource utilization, domestic and export marketing, mariculture and coastal aquaculture activities and human resource utilization and management need to be evolved and implemented in a phased manner for the balanced and sustainable development of marine fishery sector of the country.

Table 1: Potential resources available, level of exploitation and the available potential for exploitation depth-wise within the Indian EEZ (in million tonnes)

Depth range (m)	0 – 50	50 – 200	200 – 500	Oceanic	Total
Demersal	1.28	0.625	0.028	-	1.933
Neretic pelagic	1.00	0.742	-	-	1.742
Oceanic pelagic	-	-	-	-	0.246
Total (%)	2.28 (58%)	1.367 (35%)	0.028 (0.7%)	0.24 (6.3%)	3.921
Present level of exploitation	2.08	0.82	Negligible	Negligible	2.9
Available for exploitation	0.20	0.547	0.028	0.246	1.021

Source: Ministry of Agriculture, Government of India.

Table 2: Length of the coastline, continental shelf, landing centres and habitation – Coastal States and Union Territories

S No	State/UT	Approximate length of coastline (km)	Continental Shelf ('000 km^2)	No. of landing centres	No. of fishing villages
1	Andhra Pradesh	974	33	508	508
2	Goa	104	10	88	72
3	Gujarat	1 600	184	286	851
4	Karnataka	300	27	29	221
5	Kerala (P)	590	40	226	222
6	Maharashtra	720	112	184	395
7	Orissa	480	26	63	329
8	Tamil Nadu	1 076	41	362	556
9	West Bengal	158	17	47	652
10	Andaman & Nicobar Islands (P)	1 912	35	57	45
11	Daman and Diu (P)	27	---	7	31
12	Lakshadweep (P)	132	4	11	10
13	Pondicherry	45	1	28	45

Source: Department of Animal Husbandry and Dairying, Ministry of Agriculture, Government of India.

Table 3: Fishing Craft – Coastal States and Union Territories, 1999

State/Union Territory (UT)	Non-Motorized traditional craft	Motorized traditional craft	Mechanized boats	Total
1. Andhra Pradesh	53 853	4 164	8 642	66 659
2. Goa	1 094	1 100	1 092	3 286
3. Gujarat	9 222	5 391	11 372	25 985
4. Karnataka	19 292	3 452	2 866	25 610
5. Kerala	28 456	17 362	4 206	50 024
6. Maharashtra	10 256	286	8 899	19 441
7. Orissa	10 993	2 640	1 276	15 854*
8. Tamil Nadu	33 945	8 592	9 896	52 433
9. West Bengal	4 850	270	3 362	8 482
10. Andaman & Nicobar Islands	1 180	160	230	1 570
11. Daman and Diu	252	350	805	1 407
12. Lakshdweep	594	306	478	1 378
13. Pondicherry	7 297	505	560	8 362
Total	181 284	44 578	53 684	280 491*

Source: Department of Animal Husbandry and Dairying, Ministry of Agriculture, Government of India and the State Governments/ Union Territory Administrations.

* Total includes 810 FRP Catamarans and 135 Beach Landing Craft.

Table 4: Fish production and average annual growth rate, India - 1950-2003

Year	Fish production ('000 tonnes)			Average annual growth rate (Percent)		
	Marine	Inland	Total	Marine	Inland	Total
1950-51	534	218	752	--	--	--
1955-56	596	243	839	2.32	2.29	2.31
1960-61	880	280	1 160	9.53	3.05	7.65
1965-66	824	507	1 331	-1.27	16.21	2.95
1970-71	1 086	670	1 756	6.36	6.43	6.39
1973-74	1 210	748	1 958	3.81	3.88	3.83
1978-79	1 490	816	2 306	4.25	1.76	3.33
1979-80	1 492	848	2 340	0.13	3.92	1.47
1980-81	1 555	887	2 442	4.32	3.24	3.91
1981-82	1 445	999	2 444	-7.07	12.63	0.08
1982-83	1 427	940	2 367	-1.25	-5.91	-3.15
1983-84	1 519	987	2 506	6.45	5.00	5.87
1984-85	1 698	1 103	2 801	11.78	11.75	11.77
1985-86	1 716	1 160	2 876	1.06	5.17	2.68
1986-87	1 713	1 229	2 942	-0.17	5.95	2.29
1987-88	1 658	1 301	2 959	-3.21	5.86	0.58
1988-89	1 817	1 335	3 152	9.59	2.61	6.52
1989-90	2 275	1 402	3 677	25.21	5.02	16.66
1990-91	2 300	1 536	3 836	1.10	9.56	4.32
1991-92	2 447	1 710	4 157	6.39	11.33	8.37
1992-93	2 576	1 789	4 365	5.27	4.62	5.00
1993-94	2 649	1 995	4 644	2.83	11.51	6.39
1994-95	2 692	2 097	4 789	1.62	5.11	3.12
1995-96	2 707	2 242	4 949	0.56	6.91	3.34
1996-97	2 967	2 381	5 348	9.60	6.20	8.06
1997-98	2 950	2 438	5 388	-0.57	2.39	0.75
1998-99	2 696	2 566	5 262	-9.40	5.25	-2.34
1999-2000	2 834	2 823	5 657	5.12	10.01	7.48
2000 –2001	2 811	2 845	5 656	-0.81	0.76	-0.02
2001-2002	2 830	3 126	5 956	0.67	8.99	5.03
2002-2003	2 981	3 205	6 186	5.07	2.46	3.72

Note: The growth rates presented for the periods prior to 1979 are the average annual compound growth rates.

Source: (i) CMFRI, Kochi for the period up to 1970-71.
(ii) State Governments / Union Territory Administrations after 1970-1971.

Table 5: Fishing harbours at major ports

Port	Cost (million Rs)	Year of sanction	Status	Designed capacity			
				DSV (No.)	MFV (No.)	Draft (m)	TL
Visakhapatnam							
Stage I	2 13.8	1975	C	90	300	4.5	1938
Stage II		1978	C				
Stage III		1988	C				
Madras (Chennai)							
Stage I	133.4	1973	C	50	500	3.0	1220
Stage II	85.0	1994	UC				
Cochin							
Stage I	49.4	1971	C	57	450	6.0	560
Stage II	7.7 (10.0)	1993	UC				
Calcutta (Kolkata) (Roychowk)	37.0	1971	C	15	-	6.0	120
Paradip	283.4 (380.7)	1990	C	50	500	6.0	2335
Mumbai (Sassoon Dock)	82.5 (109.9)	1977	UC	-	700	3.0	1153

- Figures in brackets indicate the revised cost; C - Completed / Commissioned; UC - Under construction; DSV - Deep Sea Vessels; MFV-Motorized Fishing Vessels; TL-Total length of landing + berthing + outfitting + repair quay/wharf (in meters).

Source: Planning Commission, 2001.

Table 6: Number of minor fishing harbours and fish landing centres commissioned/under construction by States/UTs

State/UT	Minor fishing harbour		Fish landing centres	
	Commissioned	Under construction	Commissioned	Under construction
Andhra Pradesh	3	1	1	1
Goa	-	-	1	1
Gujarat	4	1	20	1
Karnataka	5	3	9	5
Kerala	5	5	22	6
Maharashtra	1	1	29	7
Orissa	3	1	21	5
Tamil Nadu	6	1	11	-
West Bengal	2	1	12	-
Andaman & Nicobar Islands	1	-	-	-
Daman &Diu	-	-	-	2
Lakshadweep	-	-	3	-
Pondicherry	-	1	1	-
Total	30	15	130	28

Table 7: Socio-economic profile of marine fishermen In India

Parameters	1980	1997
Marine fishermen households (million)	0.350	0.50
Marine fishermen population (million)	2.050	3.0
Average size of fishermen households (Nos.)	6	6
No. of active fishermen (million)	0.462	1.025
No. of landing centres	1630	2251
No. of marine fishing villages	2397	3638
Average fishermen household per village (Nos.)	146	137
Average fishermen population per village (Nos.)	855	825
Average No. of sea-going fishermen per village	193	282
Ratio of active fishermen to total population	1:4	1:3
Marine fisher production (million tonnes)	1:5	2:3
Per capita production per active fishermen (kg)	3 250	2 240

Source: Sathiadhas *et al.* (See footnote [6], 1997b).

Table 8: Manpower in harvest and post-harvest in marine fisheries

Harvesting operations	1.025 million
Post- harvest employment	1.200 million
Employment potential Harvest Post-harvest	 1 Man day/ 5 kg fish 1 Man day/ 5 kg fish
Active fishing Trawl fishing Gillnetters/purseine	 0.15 million 0.05 million
Motorized sector Motorized canoes and kattumaran	0.17 million 0.058 million
Non-mechanized fishing Kattumaran Plank built boats Dug out canoes	0.655 million 0.27 million 0.20 million 0.145 million

Source: Sathiadhas *et al.* (See footnote [6]).

Table 9: Structural changes in fishing fleet, active fishermen and production

Item	Year	Non-mechanized	Motorized	Mechanized
Fishing fleet	1980	1 37000	-	19 013
	1997	1 60000	32 000	47 000
Active fishermen	1980	3 48000	-	1 14 000
	1997	65 000	17 000	20 000
Marine fish production (%)	1980	60	-	40
	1997	13	19	68
Annual average production (l)	1980	6.57	-	32
	1997	1.7	13	33
Annual per capita production per active fishermen (kg)	1980	2 590	-	5 260
	1997	420	2 390	8 130
Ownership by active fishermen, %	1980	39	-	17
	1997	25	19	24
Number of persons employed	1997	6 55 000	1 70 000	2 00 000

Source: Sathiadhas *et al.* (See footnote[6]).

Table 10: Outlays and expenditure for fisheries development over plans (in million Rs)

Plan	Outlay/ expenditure	Central sector schemes	Centrally sponsored schemes	State schemes	Total
First Plan	Outlay	10.0	@	41.3	51.3
	Exp.	3.80	@	24.0	27.8
Second Plan	Outlay	37.3	@	85.3	122.6
	Exp.	18.0	@	72.6	90.6
Third Plan	Outlay	67.2	@	215.5	282.7
	Exp.	30.3	@	202.9	233.2
Annual Plans (1966-69)	Outlay	153.0	@	269.1	422.1
	Exp.	90.4	@	236.3	326.7
Fourth Plan	Outlay	280.0	60.0	486.8	826.8
	Exp.	81.1	51.7	408.3	541.1
Fifth Plan	Outlay	510.5	170.0	831.9	1 512.4
	Exp.	399.3	40.7	712.1	1 152.1
Sixth Plan	Outlay	1 371.0	366.2	1 974.2	3 711.4
	Exp.	755.4	288.0	1 826.1	2 869.5
Seventh Plan	Outlay	1 565.8	607.5	3 291.9	5 465.2
	Exp.	1 169.3	532.6	3 074.0	4 775.9
Annual Plans (1990-92)	Outlay	254.5	551.6	2 121.3	2 927.4
	Exp.	164.8	437.3	2 119.0	2 721.1
Eighth Plan	Outlay	1 390.0	3 000.0	7 663.9	12 053.9
	Exp.	1 610.1	2 680.2	6 894.3	11 184.6
Ninth Plan	Outlay	2 400.0	5 600.0	12 697.8	20 697.8

@ Figures given under Central sector include those of Centrally sponsored schemes.

Note: Figures for Seventh Plan include the figures for Fishery Survey of India and Trawler Development Fund, which were transferred to the Ministry of Food Processing Industries.

Source: Planning Commission, 2001.

Table 11: Fisheries plan allocation (central/centrally sponsored schemes) During the Tenth Five-year Plan (2002-2007)

S No.	Name of the scheme	Allocation* (in million Rs)
1	Development of inland fisheries and aquaculture	1 350.00
2	Development of marine fisheries, infrastructure and post-harvest operations	2 600.00
3	Welfare Programmes/ HRD (including training and extension)	1 350.00
4	Assistance to fisheries institutes	1 750.00
5	Strengthening of database and information networking in fisheries	450.00
Total		7 500.00

Source: Planning Commission, Government of India.

* This does not include the allocations made for the States/Uts.

Table 12: Seasonal closure of operation of mechanized fishing vessels during 1997

* Only for long cruise trawlers.

State	Period of closure	Days of closure (No.)
Gujarat	Mid May-mid September	145
Maharashtra	July and 1st fortnight of August	45
Karnataka	June, July, August	90
Kerala	Mid August – mid September	30
South Tamil Nadu	4 days/ week	
North Tamil Nadu	Nil	0
Andhra Pradesh	May and 1st fortnight of June*	45*

Table13: Demarcation of fishing area for craft of different capacities

State	Area and type of operation
Gujarat	No restriction
Maharashtra	Artisanal : 10-20 m depth Mechanized : beyond 20 m depth
Goa	Artisanal : up to 5 km Mechanized : beyond 5 km
Karnataka	Artisanal : up to 6 km Mechanized : <15 m OAL:6-20 km >15 m OAL: beyond 20 km
Kerala	Artisanal : up to 10 km Mechanized : <25 GRT : 10-22 km >25 GRT: beyond 23 km
Tamil Nadu	Artisanal : up to 5 km Mechanized : beyond 5 km
Andhra Pradesh	Artisanal : up to 10 km Mechanized : <20 m OAL: 10-23 km >20 m OAL: beyond 23 km
Orissa	Artisanal : up to 5 km Mechanized : <15 m OAL:5-10 km >15 m OAL: beyond 10 km
West Bengal	No restriction

Table 14: Action plan emerged from the two-day national workshop on the Code of Conduct for Responsible Fisheries, 29-30 September 2000 Chennai

S No.	Plan of action
1	**The Code of Conduct for Responsible Fisheries (the Code) should be translated into vernacular languages. A simplified and concise version of the Code should be provided to the States/Union Territories on a priority basis for translation into vernacular languages.**
2	**The Code should be popularized through street plays, comic books, audio-visual presentations, etc. The electronic media should be considered for speedy dissemination of the Code.**
3	The coastal States and Union Territories should organize workshops/ meetings with various user groups for better understanding of the provisions of the Code and its implementation.
4	The fishing capacity should be kept at optimum levels, commensurate with sustainability. The practice of multi-agency registration of fishing vessels, prevalent in some States, should also be reconsidered.
5	The coastal States and Union Territories should consider formulating a clearer definition of access rights to the territorial waters and harmonize their zonation policy for different categories of fishing vessels.
6	There should be a uniform ban on fishing during monsoon months.
7	Resource enhancement programmes, such as setting up of artificial reefs and ranching with restricted access, should be undertaken, especially for species under threat or subjected to overexploitation.
8	Every coastal State and Union Territory should consider setting up a Resource Management Wing in the Department of Fisheries
9	The coastal States and Union Territories should consider setting up Awareness Centres to popularize the Code and other activities concerning fisheries development, conservation and management.
10	The Government of India (the Centre) and the States/Union Territories should consider laying more emphasis on post-harvest requirements of the fisheries sector, including quality control of fish and fish products for both domestic and export markets.
11	The research institutions under the Ministry of Agriculture and State Agricultural Universities should aim at providing adequate research support to the implementation of the Code.
12	The Centre and the States should endeavour to set up a sound information database to meet the implementation requirements of the Code.
13	The States and Union Territories should be provided with special assistance for implementation of the provisions of the Code.
14	The Centre and the States should consider laying more emphasis on fisheries development, conservation and management aspects in the future Five year Plans.
15	The subsidiarity principle, which takes management to the lowest meaningful level to enhance participation, should be encouraged.
16	The Centre should consider introducing model bill (s)/ legislation with the active participation of all stakeholder representatives for implementing those provisions of the Code, which are presently not covered by legislation.
17	The Centre and the States/Union Territories should consider instituting reforms in the existing legislation on fisheries to meet the requirements of the Code.
18	The Centre should consider bringing all fisheries matters, now divided among various Ministries and Departments under one administrative umbrella.
19	To check poaching/illegal fishing in the Bay of Bengal, FAO/BOBP may consider setting up a mechanism to enable the Bay of Bengal countries to interact regularly.
20	A regional mechanism for study tours should be encouraged among countries around the Bay of Bengal to learn from one another's experiences in implementing the Code.

Annex

Developmental thrust and expenditure during the various Five-Year Plan periods (in million Rs)

Plan	Period	Outlay	Expenditure	Developmental Thrust
I	1951- 1956	51.3	27.8	Inland fisheries and collection of spawn and fry from natural sources. Some States passed legislation for bringing neglected water under fish culture.
II	1956-1961	122.6	90.6	Programmes initiated in the First Plan continued during the Second Plan with added thrust on development of marine fisheries.
III	1961- 1966	282.7	233.2	Thrust on increased fish production, mechanization of fishing vessels and programmes on improvement in the condition of fishermen. Schemes on development of infrastructure for landing and berthing facilities for fishing vessels introduced.
IV	1969- 1974	826.8	541.1	Development of export potential, including setting up of an autonomous authority for export promotion. Allocation of separate outlay for fisheries research. Setting up of Special Trawler Development Fund. Setting up of Fish Farmers' Development Agencies to promote inland aquaculture.
V	1974-1979	1 512.4	1 152.1	Development of brackishwater fisheries, survey of marine fisheries resources, development of infrastructure facilities for coastal fishing villages, etc.
VI	1980- 1985	3 711.4	2 869.5	Assistance for acquisition of trawlers for deeper fishing. Development of inland fisheries statistics. Establishment of prawn hatcheries and prawn farming.
VII	1985- 1990	5 465.2	4 775.9	Motorization of traditional fishing craft. National Welfare Fund for development of fishermen villages. Conservation of marine resources through closed season. Initiation of new Deep-sea Fishing Policy.
VIII	1992- 1997	12 053.9	11 184.6	Strengthening of inland fish marketing, resource enhancement through artificial reefs. Fisheries training and extension. Setting up of large number of minor fishing harbours and fish landing centres. Setting up of Aquaculture Authority for regulation of shrimp farming.
IX	1997- 2002	20 697.8	*	Acquisition of survey vessels for strengthening Fishery Survey of India. Modernization of fishing harbours and fish landing centres.

The period 1966 – 1969, 1979 – 1980 and 1990 – 1992 were considered as Annual Plans; * Expenditure figures yet to be firmed up.

Access agreements within the context of fiscal reforms The Mozambican context

by

Herminio Lima Tembe[1]

Introduction

With coordinates extremes 10° 27' North; 26° 52' South; 30° 12' East and 40° 51' West, Mozambique has approximately 100 000 km^2 of territorial waters and 562 000 km^2 of Exclusive Economic Zone (EEZ). Stretching from the Rovuma River (at the northern border with Tanzania) to Ponta d'Ouro (at the southern border with South Africa), the coastline of Mozambique is 2 780 km long.

Inland waters comprise mainly the Niassa lake and the man made Cahora Bassa lake, as well as a number of rivers and small water bodies in which fishing activities and fish culture are undertaken. The lake Niassa, which is shared by other two countries (Tanzania and Malawi), is the third deepest worldwide lake (700 metres deep) and is famous for its large bio-diversity. The total surface of fresh water is 13 000 km^2, including 21% of Lake Niassa shared by Mozambique.

Traditionally the Mozambican fishing fleets operate on coastal resources and to a lesser extent on some deep-sea species. However, a new fishery was started in the years 90 and developed very rapidly in the fresh water of the Cahora Bassa basin. That is the kapenta fishery which is today the third most important for fish exports.

The main fish resources can be grouped in three categories on the basis of their commercial value:

1) The crustaceans, accounting for 77% of the production value, include the shallow water shrimp, which is the key product, followed by deep-sea prawn. Furthermore, there are also crayfish, crabs and lobsters.

2) The finfish, accounting for 22% of the production value, includes large and small demersal species and most predominantly pelagic species.

3) The molluscs accounting for less than 1% of the production value, include species like squids, octopus, sea-cucumbers and bivalves (Figure 1).

Although the national fleets are not directly involved in the exploitation of the tuna fishery, Mozambique has been licensing distant waters fishing fleets from foreign operators on the basis of commercial agreements. The economic contribution of this fishery is that of the earnings from the charge of licence fees.

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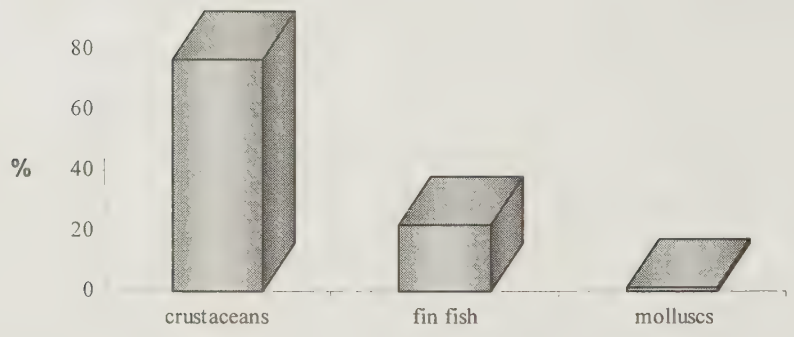

Figure 1: The main fish resources grouped in three categories on the basis of their commercial value.

The role of fisheries in the economy

There are two main categories of the Mozambican fisheries sector structure: one is the commercial fishery and the other the artisanal fishery. The commercial fishery integrates the big industry, mainly composed of joint-venture companies employing advanced fishing technology, and the small-scale enterprises dominated by Mozambican capitals. They are export-oriented producers and their activity is mainly concentrated on high valued resources such as shrimp, deep-sea prawns, crayfish and the fresh water kapenta. The artisanal fishery is the most important in the Mozambican context. Even though it only brings a little contribution to the export market, it is however the key producer for the supply of the national market and it represents over 80% of the total fish production. On the other hand the artisanal fishery is responsible for a massive job creation.

The commercial fishery is vertically integrated, which means that the producing company has the control of the whole production chain, from harvesting, processing through to marketing. This feature is more pronounced in the joint venture companies where the company production is often bound to the mother-company of the foreign partner. Commercial conflicts amongst the joint venture partners are originating from this situation when the national interest is not well served in relation to opportunities for free choice of export market based on best offers. However, the advantage of long-term secured market is not to be ignored.

The artisanal fishery is almost strictly horizontally integrated; every one specializes on one particular activity: the fishers will go fishing, middle-women take care of fish trading and so on. For so being, it provides for a larger involvement of people, which has an important impact on job creation and rent distribution. Fish processors buy fish from the fisherman on contractual schemes and undertake the fish processing activity, both for the national market and for export, this being the best solution for value addition on the artisanal fish produce.

Mozambique has no tradition in aquaculture but it is now becoming an important activity. After many years of research and training in this field, in attempt to develop the huge potential for shrimp farming, the first commercial harvest of farmed shrimp was recorded in year 2002. It has added upon the commercially farmed sea-weeds that has been produced for a number of years but with more intensity only in the recent years.

Relative to year 2002 the total value of fish production was over US$132 million, including wild catch and aquaculture production. This corresponds to 112 000 tonnes of caught fish and 850 tonnes of farmed product, including 600 tonnes of shrimp and 250 tonnes of see-weeds. Out of these figures 90 000 tonnes of caught fish and the total of sea-weeds were produced by the artisanal operators.

The value of exports was over US$ 96.5 million for a total of 20 250 tonnes of exported fishery products. The aquaculture produce contributed with over US$3 million of the total. The main market of destination of Mozambican exports were Europe with 62%, Regional market (South Africa, Zimbabwe and Malawi) with 25% and Asia (Japan) with 12%.

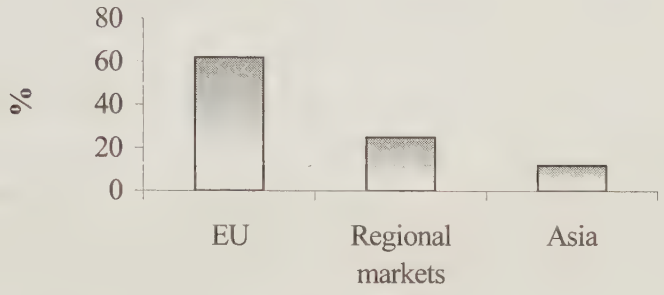

Figure 2: The main markets of destination of Mozambican exported products

This market structure reflects the vertical integration of the fishing industry, where the major producing companies are joint ventures with European partners. There are also joint venture companies with partners originating from South Africa, Japan and Zimbabwe.

The fisheries sector has been the key contributor to the balance of payment since after the independence in 1975. The export earnings have been in the range of 40 to 50% for many years, until the recent development of smelter industry in Mozambique. With the current 28% contribution to the total domestic exports (year 2002) fisheries is still heading the list of exporting sectors. The contribution to the Gross Domestic Product (GDP) is in the order of 5%.

Institutional set-up, police and legislation

The fisheries sector has gone through a long process of institutional reforms since after the independence. As the importance of the fisheries for the national economic development was recognized, the ongoing concern has been about organizing the fisheries administration in order to secure the management and development of the fisheries sector, where different institutional structures have been implemented in pursuit of the above-mentioned objective. The Ministry of Fisheries was created in year 2000, when it was considered to split with agriculture. Since then, the ongoing process included functional analysis for improvements in operational efficiency, with special emphasis on decentralization and regional capacity building.

In 1994 the sector adopted a fisheries Master Plan, a tool for the Government authorities to identify the strategies that the State will adopt to achieve medium- and long-term development goals. The master plan was drafted in the context of general economic reforms implemented by the Government since 1987, characterized by growing privatization of the economy, scarcity of capital, lack of foreign exchange, a high rate of unemployment, difficulties in food supplies and deterioration of infrastructure. Furthermore, the master plan is an instrument to be used to acquaint the economic agents with intentions and expectations of the State, thereby furnishing a basis on which the private sector may plan its business operations and investments.

In 1996, the national Fisheries Policy was adopted and framed within the overall development objectives of the national economy, which are to provide for food security, sustainable economic growth, increase the net foreign exchange earnings, reduce

unemployment rate and poverty alleviation. The sector specific objectives derived from the Fisheries Policy were drawn up to attain the following:

1. improved internal supply of fish food as a contribution in reducing the local food supply deficit;

2. increased earnings in foreign currency through increased export volumes of fish produce and value added products;

3. improved leaving conditions of the fishing communities through increased job opportunities and economic rent generation.

The legal basis of the fisheries is given by the Fisheries Law 3/90 of 26 September 1990 and subsequent regulations. The fisheries Law established that fish resources is State property, so being it is the State's responsibility to secure sustainability of the fishing activities and resource management. The management regime of the fisheries is based on fishing licences, Total Allowable Catch (TAC)/quota allocations and limited entry regulation accomplished by closed seasons and mesh size regulation for the economically important fisheries. All fisheries are subject to licences, irrespective of their economic value, except for subsistence fishing activities.

A satellite-based vessel monitoring system (VMS) is under implementation at national level to provide for a better coverage of fleet operations in a cost-efficient way. This initiative is being supplemented by the ongoing SADC regional monitoring, control and surveillance (MCS) project.

Another important management regime is being emphasized, particularly in the small-scale fisheries. That is the co-management system. Although these systems are known in Mozambique since before the independence, but as isolated initiatives, from mid 1990's continuous and more consistent approaches begun to be observed with strong collaboration from some international organization (former World fish centre).

By now, about 30 community councils have been established in three coastal provinces of Nampula, Zambézia and Maputo and 3 co-management committees are operational in the Nampula and Inhambane provinces.

In order to make legal provisions for the new technological developments (VMS), coupled with the need to accommodate other requirements and obligations established in the regional Fisheries Protocol and in the international fisheries legislation, a review of the national maritime fisheries legislation is being made. The ongoing revision of the Maritime Fisheries Regulation has also been adapted in order to establish the legal framework of the co-management systems whereas the respective institutional framework is under development with the aim to promote mechanisms of sustainability of the community based organizations.

Economics and fiscal polices in fisheries

The fisheries Master Plan has established some parameters for the sector expenditures, based on an index of 2.5% of the fish production value for the sector recurrent expenditures. The master plan indicators estimated the fish production value to be in the range of US$182.2 million in year 2000 and US$209.3 million in 2005. Nonetheless, the production value recorded, as for 2002, was of US$132.0 million.

However, over the last three years the sector public budget has been limited within the range of US$1.5 to US$2.2 million, which corresponded to 1.15% and 2.0%. The earning directly generated from the fisheries activities, in the form of licence fees, levies, etc. has hit the

figures of US$3.8 million in 2002 of which 40% has been conveyed to the State treasury, on the basis of the prevailing rules. The remaining 60% were retained within the sector to finance the internal expenditure but it has been insufficient to assist the sector internal affairs.

International financial assistance has been securing additional funds for investment in fisheries development and for institutional support. In the last three years this assistance has grown from US$6.8 million to US$13.5 million, including grant aid and credit funds. In fact, the sector has been highly depending on external aid for the implementation of the strategic plan defined in the fisheries Master Plan.

The fisheries earnings currently recorded are based essentially on licence fees. Charge of service tax for fish inspection and quality assurance has been implemented since 1999 but it can be considered highly subsidized because the amounts involved are too far from covering the service costs, including laboratory analysis and product certification.

On the other hand, the structure of the fees charged for the fishing licences is not adequate. It does not relate to the commercial value of the fish species per type of licence nor it reflects the prevailing management regimes, for instance, higher fees for highly demanded resources or for access to restricted fishing grounds. This issue is currently being addressed and a new regime is to be implemented in 2004 after approval by the relevant authorities.

The Government has been implementing important fiscal reform as part of the Economic and Social Restructuring Program adopted since 1987. The remarkable impacts of these reforms are also recognized within the fisheries sector, particularly regarding the costs derived from duty fees on import of raw material for the fisheries service industry and aquaculture. However, the fishing industry is constrained with the fuel taxation policy that is bringing up the price of fuel far above the international prices, thus affecting the competitiveness of the Mozambican fish produce in the international market. A levy is being charged on top of the fuel import price and it is destined to generate funds for the national road development program. The fishing industry, which uses no roads but boats at sea, claims to be overburdened with taxes not inherent to their activity. It should be noted that the fishing industry is the greater user of fuel in Mozambique, thus representing a huge contribution to the said funds.

Fisheries agreements

The development of a Mozambican industrial basis within the fisheries sector has been a guiding principle since after the independence, but it was recognized that this was a process that would have to develop along some time. To secure an economic use of the Mozambican fish resources it was considered to permit the operation of foreign fleets on the basis of fisheries agreements. The first fisheries agreement was signed with the Soviet Union (former URSS) in 1976, just one year after the independence, with a validity period of five years. In 1988 a fisheries agreement was signed with the European Community (EC). These agreements included in their scope, cooperation in respect to access to fishing rights, research and experimental fishing, etc. and the direct benefits that Mozambique received included financial assistance for fisheries development programmes, institutional capacity building, technical assistance, training and scholarship for Mozambicans in the international universities, etc.

The approval of the Fisheries Law in 1990 has changed the policy and institutional context as it was then imperative that the development of fisheries relative to the exploitation of fish stocks within the territorial waters of Mozambique should be reserved to national fleets. Mozambican registered joint venture companies were then present and operational with sufficient capacity to fish the available coastal stocks. Except for the highly migratory tuna

stocks that Mozambican operators do not have tradition neither the technological and marketing capacity to embark on its exploitation, these are still licensed to foreign fleets under commercial agreements.

Ever since the Mozambican Government denounced the fisheries agreements with the former URSS and the EC in 1992 and 1993 respectively, a new fisheries agreement has been negotiated with the European Union. The negotiations have recently been successfully completed and a new agreement is to be implemented starting in 2004. In the regional context Mozambique holds fisheries agreements with Namibia and South Africa (under revision) and a memorandum of understanding with Mauritius.

Challenges and perspectives

In addition to the traditional distant water fleets operating on the tuna fishery Mozambique has, as from 2002, experimented the presence of new types of fleets calling in Mozambican ports demanding services of fish handling and export clearance. This is the deep-sea fishing fleet operating in the international waters or around coastal states EEZ. The rather short experience has, however, already shown that there is need for a better liaison amongst the national port and the fisheries authorities, as well as the need for a better exchange of communications with the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). This is in order to secure the observance of the provisions of the international legislation concerning responsible fishing activities and sustainability of the exploitation of deep-sea resources. There is a growing interest of Mozambique for subscription to CCAMLR as this may lead to increased rent capture into the national economy. But this can only be considered in the perspective of partnership between Mozambican entrepreneurs and foreign investors, given the limitation of the national technological capacity for deep-sea fishing.

The implementation of the new VMS technology and the future placement of patrolling ability for fisheries surveillance will improve the current country's vulnerability to illegal fishing or the transit of illegal fishing fleets.

Very strong steps have been taken by the Mozambican Government on the basis of the commitment to harmonize the national fisheries legislation with the international fisheries conventions. The main fisheries legislation is being revised or completed and this will strengthen the Mozambican position in the international affairs, including an easier access to the main export markets.

Within the internal context of the fisheries management measures, the very strong step taken for reduction of the excessive fishing effort on the shallow water shrimp fishery should be underlined. It consisted of withdrawal of a number of industrial fishing licences and the extension of the closed season from two to three months, which was not a politically ease issue to deal with. The same matter has had a very strong bearing in the negotiations of the fisheries agreement with the European Union as the shrimp fishery was the principal interest of EU to be included in the cooperation package but that would never have the approval of Mozambique.

Fiscal reforms for fisheries in Guinea

by

Bah Abdourahim[1]

Introduction

- Situated in West Africa, the Guinean Republic has a population of 7.2 million people and a surface area of around 245 857 km^2.

- It is a coastal country with an Atlantic shoreline of 300 km. It has the largest continental shelf in Western Africa, measuring 46 000km^2. The various water courses from the coastal basin bring large quantities of nutriments favouring the abundance of various fishery resources.

- Guinea's marine zone has a large marine fishing potential (industrial and artisanal) due to the the continental shelf specificity.

- The various water courses the country offer possibilities for aquaculture and continental fishing.

- The climate is characterized by two 6-month seasons.

Exploitable potential of fishery resources: river and marine waters are prolific and host biological potential which can be exploited annually in the region of:

• Pelagic fish	50-200 000 tonnes
• benthic fish	35-40 000 tonnes
• Shrimps	2-4 000 tonnes
• Cephalopods	5-12 000 tonnes
• Large pelagics	2 500 tonnes
• Continental fishery	12 000 tonnes

- The main species found belong essentially to the Ariidae, Albulidae, Carangidae, Clupeidae, Cynoglossidae, Carcharhinidae, Drepanidae, Dasyatidae, Elopidae, Gymnuridae, Hemigaleidae, Lutjanidae, Sparidae, Scombridae, Mullidae, Mugilidae, Polynemidae, Sciaenidae, Pomadasyidae Sphyraenidae and Sphyrnidae families.

Brief economic fisheries data

- Fisheries is one of the most important economic sectors in Guinea. It generates around 9 000 jobs directly and 200 000 indirectly.
- Annual production is estimated at 91 000 tonnes (1997); in 2000 production rose, reaching a peak of 50 000 tonnes for each of the two marine fisheries (industrial and artisanal). As for continental fishery, annual production is in the region of 6 000 tonnes.

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[1] National Marine Fisheries Director.

Landings take place at the 200 landing places and fishing sites, 17 of which are in marine zones.

- According to the annual fishery programme (2003), a percentage of by-catch is authorized according to the type of fishing carried out, the maximum of which is 9 percent for fish fish captures and 15 percent for shrimp and cephalopod .
- Consumption of animal protein per capita is 13 kg/year.
- Within the framework of the sector's contribution to the balance of payments, fisheries provides the national economy with direct annual financial contribution resulting from licence sales of around 20 to 25 billion Guinean francs.

- Fishery administration deals with licence management via the «Centre national de surveillance et de protection des pêches» (CNSP).
- Export in both fresh and smoked fish has seen a rapid development in these past few years. The monitoring and quality control service issues health and hygiene certificates which have generated a fiscal income estimated at 100 million Guinean francs per year.
- This contribution could have been higher if the country possessed a national fishing fleet and a land-based processing industry.

Sectorial policy

- The fishery sector policy has been reviewed following the liberal option taken during these last few years. The main objective is to optimize economic and social benefits that could be obtained from the country's rational and sustainable exploitation of fishery resources.

The policy's specific objectives focus on:

- food security;
- poverty alleviation;
- the sector's integration in the national economy;
- job creation and a substantial rise in public revenue profits.

To reach these objectives, the sectorial policy is relying on the following strategies:

- sustainable resource exploitation for present and future generations;
- support tovillage communities, economic operators and socio-professional organizations within the sector;
- supporting and setting up fishing infrastructures which meet quality standards ;
- institutional support for the fishery sector.

The plan of action to implement this policy includes:

- to provide support for fishery research in order to monitor and evaluate resources;
- fisheries surveillance and protection;
- participation of artisanal fishermen in monitoring, control and surveillance (MCS) of the coastal zone.

Management measures

- A precautionnary approach to management measures which would strengthen the coastal zone
- Reform and fishery management measures aim essentially to:
    - protection of fishery resources which are a national heritage, in order to ensure their durability for present and future generations;
    - protection of fragile ecosystems and measures to protect fish reproduction;
    - reduction of conflicts between artisanal and industrial fishing;
    - a setting up of an after-catch-loss programme in order to reduce sea waste which contributes to increase fishing mortality that brings no economic benefits to either the fishery industry or to the population.

Socio-economic measures and their aims:

- food security for the population;
- development of a national capacity to exploit fishery resources;
- creation of adequate infrastructures to produce high value fishery products;
- job creation ;
- substantial contribution to State revenue;
- reduction of poverty levels by improving the population's living conditions.

Access conditions to the resource focus on:

- banning the use of pair-trawling, purse seines and beach seines;
- banning trawl fishing within the 0 to 10 nautical mile zone;
- a minimum duration of fishing licences to be fixed to 3 months;
- exclusion of fish collecitng boats within the 0 to 10 nautical mile zone;
- individual vessel capacity limitation to 1 000 Gross Register Tonnage (GRT) for demersal fishing and 2 600 GRT for pelagic fishing;
- setting up fishing agreements with industrial fishing companies;
- the signing of agreements by fishing companies concerning partial landings in Guinea;
- stepping up coastal monitoring control and surveillance and severe repression of offending vessels;
- encouraging the installation of a satelite monitoring system (SMS) on board fishing vessels
- strengthening artisanal fishery participative surveillance;
- presence of observers on board licenced vessels.

Problems and drawbacks:

- foreign fleet dominating Guinean EEZ resource exploitation;
- lack of professionalism on behalf of Guinean fishing operators (artisanal and industrial);
- inefficient fishery control and surveillance;
- the research system's inability to improve knowledge on available ressources;
- lack of national funds to encourage development of the private fishery sector.

Attempts at sector reform:

A lack of professionalism and particularly the inexistence of a national fleet has led the State to take the following measures:

- sale and lease of State vessels to private sector operators;
- chartering foreign fishing vessels by the Guinean private sector ;
- tax reductions for vessels concerned, in order to make up for the lack of private sector funding;
- the sale and lease of outboard engines to artisanal fishermen, within an auto-management framework. This has lead to develop a permanent assistance mentality in fishermen;
- the programme ended in failure, its consequences were felt at all socio-economic levels of the sector (a decline in public revenue taxes and in possible job prospects, lack of national fleet, etc.) ;
- missed tax earnings within the framework of this programme were estimated at several million dollars ;
- in addition, the programme brought about a disorganized resource exploitation, due to exemptions that were granted to vessels flying Guinean flag.

Future prospects:

- to encourage better fishery surveillance;
- to strengthen fishery research capacity;
- to set up a national fishing fleet in order to facilitate job creation and product added value;
- create possibilities for Guinean operators to acquire vessels previously used in bi- or multilateral partnership;
- to set up temporary foreign fleet operator's associations which would benefit from current Guinean investment policies;
- to make fisheries more cost effective;
- improve socio-economic impact;
- to set up a sector tax system which would take into account all aspects of the sector, as opposed to the current system which is only based on sales of fishing licences. This approach would contribute to sustainable exploitation of fishery resources.

The Support unit for International Fisheries and Aquatic Research conceived and organized an international workshop on fiscal reform for fisheries, which was hosted by FAO from 13 to 15 October 2003 in Rome, Italy. A key goal of the workshop was to discuss the best use of fiscal methods to achieve both fisheries policy objectives and broader economic, social and environmental objectives.

This supplement to the Report of the Workshop and Exchange of Views on Fiscal Reforms for Fisheries – to Promote Growth, Poverty Eradication and Sustainable Management No. 732 presents a compilation of country papers prepared by workshop participants – all key policy-makers from ministries of finance and fisheries, and researchers in their countries of origin. The country papers are based both on personal experience and secondary material, and provide an overview of the following: (i) experience with fishery fiscal reforms focusing on international and national levels of fisheries policy and governance; (ii) experience of fisheries access agreements within effective fiscal policy and management regimes; (iii) challenges facing implementation of fiscal reform and how these may have been tackled including the need for more information; and (iv) areas where improvements can be made. Country papers presented in this supplement provided the basis to discussions at the workshop.

ISBN 92-5-105223-9 ISSN 0429-9337

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TR/M/Y5718E/1/11.04/1900